

# Our Atlantic Possessions

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J. Earle Thomson



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OUR  
ATLANTIC POSSESSIONS



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PRESIDENT ROOSEVELT AND CHIEF ENGINEER JOHN F.  
STEVENS INSPECTING THE WORK DURING THE  
BUILDING OF THE PANAMA CANAL.

Drawn by Thornton Oakley.

# OUR ATLANTIC POSSESSIONS

BY

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## FOREWORD

This Geographical Reader is the outcome of the author's personal experiences and adventures in OUR ATLANTIC POSSESSIONS. To know about the first people who came to these shores; to trace the gradual development of these lands; to ascertain how we acquired ownership; and to comprehend our close relationship with the people—the author has introduced a certain amount of popular history.

It is the aim of this book to supply information for both pupil and teacher concerning OUR ATLANTIC POSSESSIONS—Canal Zone, Guantanamo, Porto Rico, and Virgin Islands. These territories have been recently acquired and as yet little has been written about them. This book aims to provide such comprehensive knowledge and to give the necessary social, geographic, and historic background.

To take the pupils with him in imagination, the author invites them aboard the steamship *Coamo*, owned and operated by the New York and Porto Rico Steamship Company, on which the first chapter was written; and aboard the *H. H. Rogers*, an oil-tanker, where the notes for Chapter XIV were made as he sailed with his friend, Captain William Falk, one of the Panama Canal pilots, and with John Alexander Ross, captain of the oil ship.

Government officials sanctioned the airplane flight over the Panama Canal, described in Chapter XV, and Lieutenant Ralph T. Zane piloted the writer across



the Isthmus from coast to coast. To the government and to all those throughout OUR ATLANTIC POSSESSIONS who assisted him so ably in procuring material for this text, the author is especially grateful.

J. E. T.

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## CHAPTER I

### OUR FLOATING POSSESSIONS

To visit our Atlantic possessions let us board a steamer which will transport us across several bodies of water. Our floating possessions, cities in themselves, are constantly navigating the high seas. Think of the products which foreign countries send us and the manufactured and raw products we export to distant lands! We can see that ships are necessary for our growth and happiness. Let us embark on one of these ocean "grey-hounds" to visit our Atlantic possessions.

A white steamer lies at her pier in New York City waiting to take several hundred passengers and a cargo of freight to the Canal Zone. Busy porters, anxious friends, and departing tourists are moving about in the pier-house. A kind of sadness prevails. Groups of tourists stand on the decks with their eyes focussed on the crowd below. The deep bass of the throbbing whistle announces the time of departure. Busy seamen dressed in white raise the gang-planks; the band plays the "Star-Spangled Banner," and the tugboats push our vessel into the Hudson's channel. The sailor at the stern lowers and raises the Stars and Stripes three distinct times, which means "farewell." The great ship slips down the river.

Launches, freighters, anchored craft, and incoming vessels, flying many foreign flags, salute us with three blasts of their whistles. Our vessel thanks them with

three answering blasts. A huge airplane glides above us. Behind us in a deep haze lie the stately skyscrapers. As this familiar sight recedes and finally disappears our floating possession heads directly into the swells of the Atlantic.

Why are so many tourists writing cards and letters? Surely they cannot mail them until they arrive seven days later at the Canal Zone. The secret is this: every boat on either entering or leaving port must take on a pilot. One of these pilots accompanies us down the channel. As the vessel slows down to let the pilot descend the rope ladder to a waiting launch, our letters are collected to be mailed on the mainland. How surprised are our friends when they receive our first letters written at sea!

The passengers stand in groups about the decks gazing at the water. The ocean, with its whitecaps, is like a rough disk, with our steamer as its centre. We can see only the restless ocean in all directions. The clouds, tinted with gorgeous colors, and the blue heavens appear as on land.

It does not take us long to discover that our ocean palace is like a floating city. Our ship has as many comforts and conveniences as any of our modern hotels. As we sail down the harbor we imagine all tourists to be unfriendly. Later we cannot detect any signs of unfriendliness. The tourists seem members of one large American family. Many kinds and types of people make up our passenger list, such as authors, statesmen, emigrants, doctors, lawyers, merchants, soldiers, explorers, professors, teachers, and students.

Every half-hour we hear the ship's bells, but we do

not understand them. An explanation by the captain clears up this mystery. The ship has three watches, every twelve hours, of four hours each. A watch begins at twelve o'clock; we hear one bell at 12.30, two bells at 1.00, three bells at 1.30, and one more bell every half-hour to 4.00 o'clock, when we hear eight bells. At this time the watch ends and another begins. We have no difficulty in understanding the ship's time after a few watches.

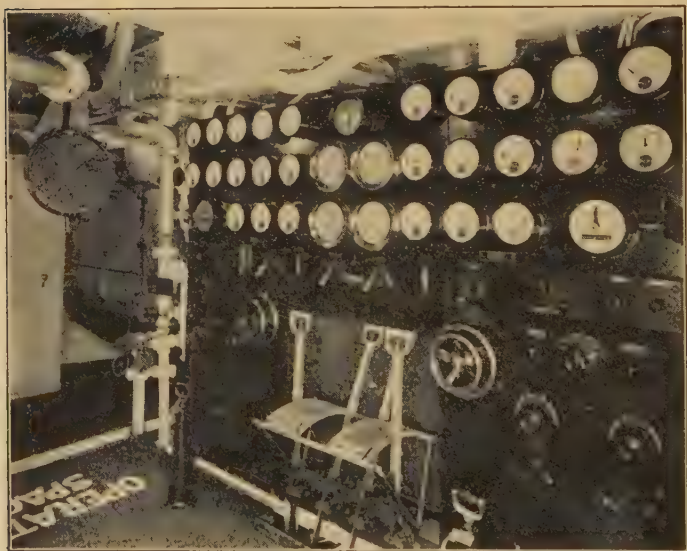
Our steamer has so many interesting features we could write a book about them. A tour of the ship, which appears longer than a city block, reveals its steel construction. Twin-screw propellers, at the end of long steel shafts, force her through the water. Oil-burning boilers provide the necessary steam which turns the turbine engines. The engineer calls our attention to the interior casings on the sides and bottom. These protect the ship in case of accident and at the same time provide space for fresh water and fuel oil. The electric-lighting, refrigerating, and ventilating plants resemble those in our modern hotels.

The captain gives us permission to explore the various parts of the ship. Most of us are familiar with cabins, staterooms, dining-room, and bridge. In their advertising ship companies show pictures of these parts. The life-boats, crow's-nest, radio-room, fire and telephone systems, and the ship's machinery command our attention.

The maritime countries of the world spend much money to make sea travel pleasant and safe. Modern vessels have water-tight compartments. These can be shut in case of an accident and thereby keep the



steamer afloat. Every ship carries a sufficient number of life-preservers, rafts, and life-boats to save all people on board. Each captain knows from his charts the location of sandy reefs, rocky shoals, and other dangers to navigation. Radio, fog-horns, lighthouses, life-



*Courtesy of the Panama Pacific Line.*

**THE MAIN OPERATING CONTROLS OF THE S. S. CALIFORNIA.**

Here the speed of the electrically driven engines is controlled in response to the pointer on the large dial hanging on the left.

saving stations, bell-buoys, and search-lights help to make life at sea secure.

We find the blue-uniformed sea-captain kind, courteous, obliging, and willing to answer our questions. First we want to know the methods used in finding latitude and longitude. The navigator with his sex-

tant measures the altitude of the sun at noon. This gives the latitude of the ship. Then with the chronometer the captain determines the longitude. You learned in geography that a navigator having his latitude and longitude knows his position at sea. An important instrument on every vessel is the magnetic compass which points north and south. Another device assists the navigator in determining his position. A small brass-looking propeller, attached to the end of a long cord, trails in the wake of the ship. The speed of the boat and the distance from port can be measured by this device. By these means the captain knows at all times his approximate position at sea.

Not satisfied with these methods, our navigator employs other means to check up on his position. For example, charts give the depth of water and the kind of material on the ocean's floor. Our captain lowers a pear-shaped brass weight coated with soap. When this bob strikes the bottom of the sea, the soil, such as mud or sand, adheres to the soap. In this way the captain determines his position by comparing this material, brought up from the bottom, with the charts.

Some of us do not realize the importance of radio in determining the position of the ship. The navigator, regardless of fog, rain, and darkness, can find his bearings by the use of radio. Direction-giving stations at different points along our coast have radio-compasses which give the direction of the incoming waves. After the captain procures directions from these stations, his charts give him his position at sea. Thus has radio made another valuable contribution to our progress and safety.

Despite the fact we sail away from home at full speed, we keep in touch with our friends and relatives by radio. Dressed in his white uniform, the radio boy is busy delivering radiograms and collecting messages. No matter where we live in America, we keep constantly in touch with our people. This fact alone impresses us with the smallness of the world and the wonders of science.

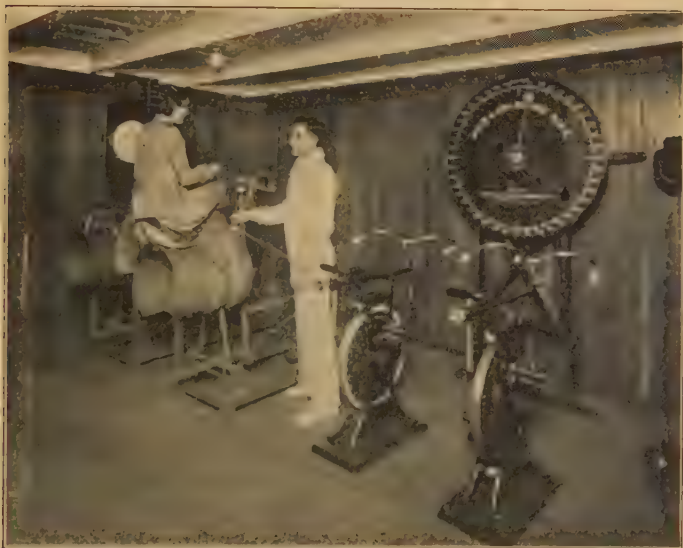
Groups of tourists stand by the railing watching the strange sights at sea. The changing colors of the sea and the white, foaming whirlpools, caused by the propellers, attract them. Some watch for sharks and whales and admire the gulls and other water-birds that follow us. Finally a whale appears a short distance away and spouts a stream of water, causing great excitement on board.

Others stand near the bow gazing at the flying fish which rise above the water and glide like thrushes through the air and disappear beneath the billows. Many of us stand about the decks doubting the existence of flying fish, when the glare of the search-light lures several of these fish to our decks giving us an opportunity to examine them. As we travel through the West Indies, we find these fish for sale in the markets.

You have heard about the Gulf Stream, the famous ocean current which originates in the Caribbean Sea and the Gulf of Mexico. After flowing through the Florida straits, it streams northeast across the Atlantic. The warm temperature of this current makes the climate of Bermuda semitropical and gives western Europe, especially Great Britain, a warmer climate

than corresponding latitudes of North America. As we cruise southward, we constantly watch for this blue, slow-moving stream.

Certain signs now lead us to believe we are approaching the Gulf Stream. Warm breezes blow across



*Courtesy of the Panama Pacific Line.*

#### THE GYMNASIUM OF THE S. S. CALIFORNIA.

Many electrical devices provide passengers with all types of exercise.

our prow, and we come to an area where the water appears a deep blue. Floating seaweed and partly submerged sticks and débris convince us of the presence of this mighty current. A few on board see, or imagine they do, the water streaming slowly northeastward.

That there is much enjoyment at sea cannot be denied. After breakfast scores of the passengers sit in

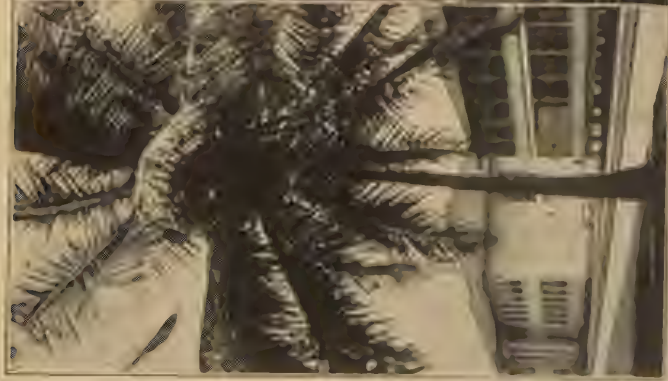
their deck-chairs reading morning newspapers. These papers, published each morning, contain the world's news, sent by wireless during the night to the radio operator. Many tourists take exercise by walking several miles around the spacious decks; others play golf on a miniature golf course; some perform feats with gymnasium apparatus; a few play shuffleboard, chess, or checkers; many swim in the pool; and the rest read books and magazines from the ship's library.

Our shipmates take a keen interest in passing the Tropic of Cancer. We learn in geography that this is an imaginary circle lying twenty-three and one-half degrees north of the equator. Of course we realize we cannot see this imaginary line, but we do want to know its exact location. When the time comes, the captain announces the passing of the Tropic of Cancer. Several little children look vainly and do not understand the reason for not seeing it.

In passing this circle we enter the Torrid Zone. Though we recognize little difference between the zones, yet we soon notice unusual sights. When the sun sets, it grows dark quickly. The stars shine more brightly, and some of the constellations appear in different positions. The captain points out the Southern Cross, that beautiful group of stars which, in our northern latitudes, we cannot see.

Those of us who have watched the sun set at sea will never forget the picture. As the shadow of the ship begins to lengthen, the voyagers crowd about the decks to watch the sunset. Above the dim horizon float groups of fleecy clouds, fringed with linings of silver and gold. Into these the sun, now shaped like a foot-

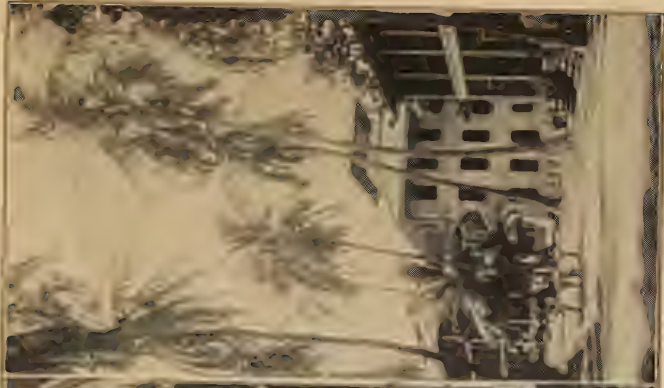




SCHOOL BUILDING, CRISTOBAL,  
CANAL ZONE.



GOLD ALTAR, SAN JOSÉ CHURCH,  
PANAMA.



A STREET IN CRISTOBAL,  
CANAL ZONE.

ball, sinks and forms a mass of crimson, orange, and golden tints. The colors of the heavens and the waters of the foaming sea form a picture no writer can describe or any artist imitate on canvas.

Early the next morning we peer into the hazy distance for the first glimpse of picturesque Cristobal. Before we enter the breakwater, a little skiff draws close to our vessel, and a pilot climbs aboard to conduct us safely to the docks. Before leaving the ship a doctor examines the tourists and asks for proofs of recent vaccination.

What an experience to step ashore in the Canal Zone, an American possession, after a delightful sail of seven days! New scenes, unfamiliar sights, and strange faces greet us at the wharf. Buildings of Spanish architecture, stately palms, and fragrant flowers, nodding in the tropical breezes, give us a silent welcome. We seem to be in a strange land among strange people, but the Stars and Stripes, flying from many masts, remind us we are travelling in our own possession—the Canal Zone.

## QUESTIONS AND PROJECTS

1. Most of you appreciate the scope and usefulness of a scrap-book or note-book. Procure one of these books, and in it make notes, maps, and drawings. You may make the book attractive and more instructive by inserting photographs and prints. Portraits, maps, autographs, facsimiles of important papers or documents, etc., may be obtained from old books, especially histories and geographies, catalogues, magazines, and newspapers. In later life this scrap-book will be a pleasant reminder of happy school-days.

2. In your newspapers and magazines find the advertisements of steamship companies whose boats operate between New York and our Atlantic possessions.

3. Make a sketch-map showing America and our four Atlantic possessions.

4. Assume that you had the pleasure of making a sea voyage. Write a letter to your parents, which the pilot will mail for you, giving your impressions at the wharf as the boat set sail.

5. What has our country done to make the sea-lanes safe?

6. In what way is radio useful at sea? Explain how sea-captains depend upon radio for their bearings.

7. Write a composition of one hundred words on the following topic: "A Day at Sea."

8. What is meant by the Gulf Stream?

9. Perhaps there are people in your community who have taken a sea voyage. Invite them to address your class, giving their personal adventures at sea.

10. Consult "The Book of Knowledge" or other reference books for information about the mechanism of ships. After you have learned about the interior of these ocean ships, select some member of your class to address your school in assembly on the topic: "A Visit to a Modern Ocean Vessel."

## CHAPTER II

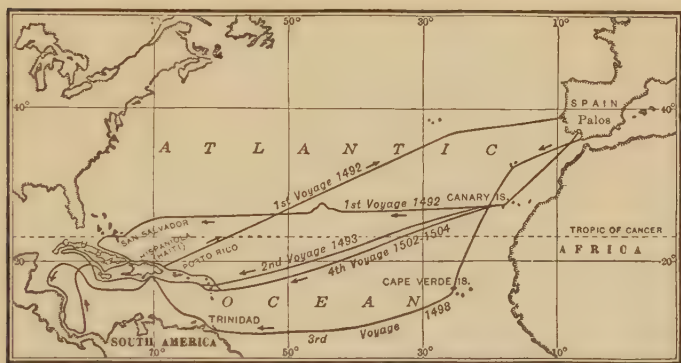
### WHITE MEN COME TO PANAMA

EVERY school in America and her possessions honors Christopher Columbus, the discoverer of America. Cruising along our shores, he sought a shorter route to the Orient. *Cristoforo Colombo* they named him in Genoa, Italy; in Spain, the Spaniards spoke of him as *Christobal Colombo*; and in English-speaking countries people called him *Christopher Columbus*. A little later we shall visit the twin cities at the entrance to the canal—Cristobal and Colon—named after this great hero.

The present-day pupil knows more about our earth than did the teachers and scientists who lived during the time of Columbus. They supposed India with all her wealth lay across the Great Sea of Darkness. In spite of this ignorance Christopher Columbus believed the earth to be round and that by sailing westward he could find a shorter route to India.

Among the Bahamas lies Watlings Island, formerly known as San Salvador, where Christopher Columbus landed on the morning of October 12, 1492. When the copper-colored natives crowded around the Europeans, Columbus really believed he had found the continent of Asia. Your first glimpse of Watlings Island will be a tall lighthouse surrounded by waving palms. Although you land to explore this little island, you will not be able to find the exact spot where Columbus first came ashore.

When this intrepid navigator returned to Spain, the entire country honored him. Other sailors made plans to sail westward in the hope of discovering new lands. During his second voyage Columbus not only found many small islands in the West Indies, but he explored Haiti and Cuba. Everywhere he found uncivilized natives, whom he called Indians, but the absence



THE FOUR VOYAGES OF COLUMBUS.

of silks and gold, pearls and rich stuffs of the East, puzzled and disappointed Columbus.

Still believing in his original plan, the explorer sailed westward in 1498. A few believed in him and had confidence in his ideas. On May 11, 1502, the king and queen sent him from Cadiz, Spain, with a small sailing fleet. The following month Columbus reached the waters of the Caribbean. In July he anchored near the Cape of Honduras, south of Yucatan. Although he encountered strong head winds and rainy weather, Columbus continued to sail southward along the coast.

Along these shores dwelt another type of Indian. These copper-colored people looked upon the whites with suspicion. Columbus exchanged trinkets for copper tools, and at last he saw some real gold. The gold ornaments in the homes and the gold rings and necklaces the natives wore led Columbus to believe that near by lay the mainland of Asia.

Inspired by these evidences of gold Columbus sailed on. At last he anchored in Limon Bay at the mouth of the Chagres River. After surveying the land adjacent to the water, the fearless sailor decided to navigate this unknown river. When the plucky Columbus found the headquarters of the raging Chagres, he did not realize the Pacific lay but fifteen miles away. Without a glimpse of this ocean Columbus retraced his path through the Chagres to Limon Bay. The passage to the Orient which he was seeking had not been found.

The weary navigator became discouraged. Sad and low-spirited, he returned to Spain. Ill luck seemed to come his way and he nearly lost his life by shipwreck. In Spain the public took little notice of his unsuccessful voyages and the discoverer and explorer passed away without knowing he had paved the way to the settlement of the New World. The time came when a cathedral was built in his honor in Havana, Cuba, and the remains of the great man were brought from Spain to be interred there. Just before the outbreak of the war between the United States and Spain the Spanish removed the remains of their hero from Columbus Cathedral back to Spain.

Balboa came soon to make explorations in this sec-



tion of the New World. After several trips through the woodlands he decided this unknown country consisted of a narrow strip of land—an isthmus. The white people made a settlement at a place on the coast which they called Nombre de Dios. Balboa became, in 1509, the first governor of this small colony of Europeans.

In September, 1513, Balboa, with 190 trained men,

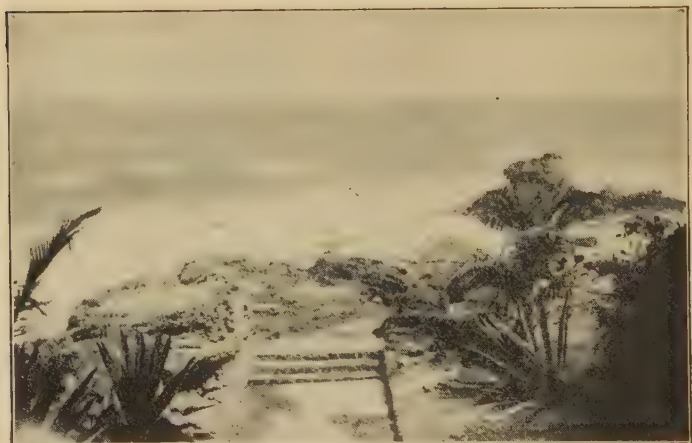


RUINS OF A CATHEDRAL TOWER, A RELIC OF OLD PANAMA.

cut his way through the forest. From a lofty hilltop he beheld a large body of water which he called the Great South Sea. A number of his men then returned to their settlement for a boat. This they dismantled for the purpose of carrying it across the isthmus. Within a few weeks Balboa and his followers reached the shores of the Pacific. Wading into the waters, he took possession of the Great South Sea for the King of Spain. The Spaniards assembled the boat and with their leader had the honor of being the first white men to navigate these waters.



The party now returned through the mountainous jungle to the Atlantic coast. Vines and various kinds of undergrowth choked the former route. To penetrate this forest the men cut a new path through the



VIEW OF THE PACIFIC OCEAN FROM BALBOA.

thickets. When the exploring party arrived at Nombre de Dios, Pedrarias, the "two-legged tiger," greeted them as governor.

The astonished Balboa sought to regain the people's favor by reporting the discovery of the Great South Sea. This increased the jealousy of Pedrarias. Balboa, accused of treason and falsely charged by his enemy, gave his life to satisfy the desires of the tyrant Pedrarias. Thus passed away the discoverer of the Pacific and the first white men to cross the isthmus.

As soon as Pedrarias established law and order among the settlers, he made plans to develop the

country. During the next few years he ordered a small army of men across the isthmus. In the year 1519, or a century before the Pilgrims landed on American shores, this Spanish governor founded Panama. His greatest piece of work lay in the construction of roads connecting Nombre de Dios and Porto Bello with Panama. Traces of these old roads may be seen to-day by the traveller. As these highways wind hither and thither through the dense vegetation, they are silent reminders of early life on the isthmus.

A Spaniard by the name of Francisco Pizarro obtained permission to explore the lands of the Incas in the vicinity of Peru. The Spanish knew these Indians had great wealth. They purposed to rob and plunder the helpless aborigines of the tropical regions. After a long and tedious march to their country, Pizarro had little difficulty in subduing the natives. The Spanish took their gold, silver, and precious stones and transported them on the backs of animals to Panama. Pizarro made arrangements to ship the plunder to Spain, the mother country. The old bridge still stands near Panama City over which the expedition passed, carrying the stolen wealth of the Incas. Pack-trains carried it over the newly constructed highway. As soon as they reached the Atlantic settlements, ships sailed with the plunder for Spain.

Spain had always been a poor country; now she occupied a powerful position in Europe due, of course, to the riches that Pizarro sent. For a long time this country exerted a powerful influence among the nations. Spain won her position by murder, theft, and plunder. This partly explains the reason of the loss of her influence among the nations.

## QUESTIONS AND PROJECTS

1. Draw a map of Panama showing the Canal Zone. On it locate Cristobal, Colon, Balboa, Panama City, Chagres River, Porto Bello.
2. Why do we celebrate "Columbus Day"?
3. Consult an encyclopædia for more information concerning San Salvador or Watlings Island.
4. In your scrap-book draw a map of the Atlantic Ocean showing each of Columbus's voyages.
5. Imagine you accompanied Columbus on his trip up the famous Chagres River. Narrate your adventures.
6. Why was Spain willing to accept stolen riches and plunder?
7. Perhaps you are acquainted with persons who have studied Spanish. If so, request them to give meanings of Porto Bello and Nombre de Dios.
8. Select a member of your class to procure additional information about the Columbus Cathedral at Havana, Cuba.
9. What is meant by latitude? longitude? Find the latitude and longitude of our dependency in Panama.
10. On the map of North America determine the number of miles from your home to Panama.

## CHAPTER III

### THE WORK OF THE PIRATES

DURING his boyhood Francis Drake developed a fondness for the sea. The white-capped waves and the changing tides attracted him. Once he received permission to sail with his uncle on a trip through the waters of the Caribbean. The Spaniards with whom they came in contact treated them cruelly and tried to take their lives, but good fortune assisted them in escaping.

Young Drake resolved to punish the Spanish for their cruelty. When he became master of a sailing vessel, his opportunity for revenge came. With his vessel equipped with guns and ammunition and a small crew of experienced sailors, Sir Francis Drake set sail for Panama.

After a long and tedious voyage Drake and his sailors anchored near the Panamanian coast at Nombre de Dios. Within Drake's heart burned a strong desire for revenge. The Spaniards did not expect an attack from any source. Unable to resist the invasion they surrendered their guns, ammunition, and supplies.

The fearless Drake made several additional raids. As a result of these attacks huge stores of gold and precious stones increased the ship's treasury. It is said that during one of these raids the Spanish outwitted Drake and saved their treasure by hiding it.

Wishing to destroy the Spanish completely, Drake joined a French pirate and his crew. These united out-

laws succeeded in robbing a caravan of about \$100,000. Thinking that the Spanish were about to attack them with reinforced strength, the bandits buried the treasure and fled. Even to this day adventurers search vainly for the lost wealth.

Henry Morgan, another pirate in the West Indies



SAN DOMINGO, WEST INDIA ISLANDS.

A chart from the time of Sir Francis Drake.

and Panama, led an unusual life. Mischievous and troublesome as a boy in Wales, he finally ran away from home to see the world. Later, as a young man, he became a pirate and sailed the high seas, murdering and robbing helpless sailors, and plundering their ships.

He chose the settlement Porto Bello for the scene of a land attack. Here he blew up the fort, imprisoned

a large number of nuns and friars, and robbed the people of their money and valuables. Finally the people gathered \$25,000 and gave to the pirate with the understanding that he should leave that part of the world. With his money and plunder Morgan returned to the West Indies, where he spent his money lavishly.



FORT LORENZO, BUILT BY THE SPANISH IN 1601 AND  
DESTROYED IN 1671.

The successes at Porto Bello lured Henry Morgan to continue as a pirate. He now turned his attention to a little town called San Lorenzo, near the mouth of the Chagres River. To capture the city and to rob the inhabitants did not require much effort. The privateer then sailed up the Chagres nearly to its source in the highlands.

After disembarking, the pilferers began their famous march across the jungle to Panama City. At times the dense thickets nearly forced the band of outlaws to return to their ships, Drake received assistance



from the friendly Indians, but Morgan incurred only their hatred and suspicion. The Indians, together with the mosquitoes, poisonous snakes, and boggy swamps, made the journey a difficult one.

The Spaniards at Panama heard that the marauders were on the way to ransack their city. To thwart their



THE OLD AND THE NEW BRIDGE, OLD PANAMA.

plans, the Spaniards loaded their boats with gold and silver and sent them out to sea. What became of the treasure-ships? Historians cannot answer the question. We do know that Morgan failed to find the valuable vaults of gold and silver.

For revenge Morgan and his men ransacked the city. Not satisfied with the plunder which they found, the highwaymen destroyed the entire city. Morgan retraced his steps across the divide and loaded his ships with the loot. Returning to England with all his ill-gotten wealth Henry Morgan lived to be honored and



respected and was finally knighted by King Charles II. The wicked pirate became Sir Henry Morgan.

The fall of old Panama practically ended the power and influence of Spain in the New World. As soon as the inhabitants recovered from the shock of Morgan's raid, they began constructing the present city of Panama. The people did not want to build another city that pirates could destroy. A new site was chosen and a strongly fortified city was built.

A modern macadamized road about five miles long connects modern Panama City with old Panama. Near the ruined city one sees a portion of the Royal Road considered at one time the richest highway in history. Vines, wild flowers, and trees cover the old roadway. The old arch bridge, constructed by the Spanish, remains quaint and picturesque. Visitors to this historic spot do not complete the tour until they have strolled over this ancient, jungle-covered bridge. In the distance stand the ruined walls of St. Augustine; on the sloping grounds stand massive walls, covered with luxuriant vegetation; and everywhere one can see remains of the homes of the people who occupied the golden city of Panama.

### QUESTIONS AND PROJECTS

1. On your maps trace the routes of Drake and Morgan.
2. What is a synonym? Give several synonyms for pirate.
3. Write a brief composition describing the hardships endured by Morgan's men before they reached Panama.
4. Give meanings of the following words: plunder, riotous, pilferer, buccaneer, impassable, macadamized, luxuriant.
5. When Morgan began making his raids, why did not Spain send her fleet to protect her possessions?

6. Do you think that Drake was justified in attacking the Spanish?

7. Why did King Charles reward Morgan's deeds of piracy?

8. After you have studied the picture of the old arched bridge, write a description of it.

9. Why did the Spanish decide to relocate their city?

10. Appoint one member of your class to make an especial study of the ruined city of Panama. Ask him to make an oral report to the class.

## CHAPTER IV

### ROADWAYS ACROSS THE ISTHMUS

AN examination of our map shows us that the Isthmus of Panama is a narrow strip of land connecting North and South America. One usually pictures this isthmus as extending in a northerly and southerly direction. How strange it seems to see the sun rise over the Pacific and set on the Atlantic side! Examining the map again, we see that the isthmus resembles a large letter "S" lying on its side. At the Canal Zone the isthmus runs almost east and west, while the canal is cut through from north to south. This will help explain the confusion in direction at the Canal Zone.

Balboa, in 1514, built the first roadway across the isthmus in a southerly direction. Consequently he named the large body of water he discovered the Great South Sea. This road, rugged and jagged, connected the two oceans, and extended a distance of thirty miles. It was the shortest highway ever constructed across this section of land. After Balboa's untimely death the crossroad fell into decay from disuse, and creeping vines caused its complete obliteration.

That Governor Pedrarias, the stern and austere ruler, built good roads cannot be denied. Under his personal direction a highway, fifty miles long, connected Panama City with Nombre de Dios and Porto Bello. The roadway, although not macadamized, contained numerous stretches of pavement. The road-

builders used great care in making the highway wide enough for two lines of traffic. The officials of the Spanish crown carried most of the wealth that came from Peru over this thoroughfare.

Cortes, the Spanish ruler of Mexico, constructed, in



THE PANAMA CANAL ZONE.

1525, a roadway from Tehuantepec Bay to the Gulf of Mexico. In the mountains the road, by winding and turning, reached an altitude of less than one thousand feet. Until this time the Tehuantepec road, one hundred twenty miles long, held the record for being the longest road in the New World. As soon as Cortes completed the road, a great commerce developed along the western coast of Mexico. On this old highway one can travel to-day over a modern road that connects the same bodies of water.

As the result of the war with Mexico, the United States acquired California, Arizona, and New Mexico.

To reach these territories, a new method of transportation was necessary. During the past, few roadways extended across the prairies. A journey to California, for instance, required several weeks and often two or three



HIGH SCHOOL BUILDING, BALBOA, CANAL ZONE.

months. To develop the Southwest, the government had to provide quicker communication.

One morning, in 1848, the newspapers of our country announced the discovery of gold in California. Excited men and women from all parts of the country prepared to make the long, tedious journey. From St. Louis, Mo., the gold-seekers travelled westward with teams and ox-carts. Hundreds of the forty-niners, as they were called, selected the Panamanian route. On the Caribbean many lost their lives by being shipwrecked. In crossing the isthmus scores died from ma-

laria, yellow fever, or cholera. Those who escaped death or illness sailed from Panama City up the coast to California.

The people of the Far West and of New York saw opportunities for a railroad across the isthmus. A number of interested men met in New York for the purpose of making plans to construct the much-needed railroad. Henry Chauncey, William Henry Aspinwall, and John L. Stevens headed this proposed project. A committee conferred with Colombia regarding the railroad. This South American country approved the proposed plans and offered necessary lands.

The engineers and surveyors made numerous surveys and decided to locate the new railroad near the site of the old Spanish roadway. Colonel G. M. Totten, in company with James L. Baldwin, arrived on the scene in 1850, expecting to construct the railroad within the next year or two.

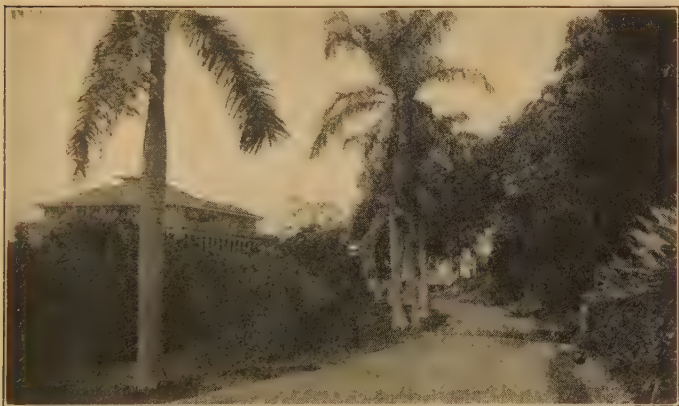
Little did these pioneer railroad-builders realize the many obstacles that would oppose their efforts. The engineers found the Black Swamp at Colon a bottomless pit. It seemed like an endless task to form a solid roadbed in this swampy marsh. The dense tropical underbrush and the raging Chagres offered many obstacles. Poisonous mosquitoes that carried germs of malaria and yellow fever, and the difficulty of importing all materials used and the necessary laborers, made the task discouraging. The toll of death ran up into the thousands. The Americans, regardless of these impediments, conquered the jungle, the various diseases, and the problems that discouraged the builders.

After five years` of continuous work the engineers



completed the forty-eight miles of track. The cost for labor and materials amounted to \$8,000,000. On January 27, 1855, six years before the war between the North and the South, the first train crossed the isthmus from ocean to ocean.

This railroad was completed over fourteen years be-



A STREET IN ANCON.

fore one connecting the Atlantic and the Pacific in our country. The Panama Company carried thousands of gold-seekers before the completion of the road. The passengers rode part way on the railroad, then walked the remaining distance. The Panama Railroad Company earned over \$2,000,000 carrying transients in this way. In those early days a ticket cost \$25 for one fare across the isthmus; to-day a ticket costs \$2.40, or five cents per mile for the forty-eight miles.

Perhaps no railroad in the world has made so much money for its owners as the Panama railroad. The profits began to decline, however, when other compa-

nies completed railroads across our own country. In 1881, the owners of the railroad sold it to the French for \$18,000,000. Our government acquired the railroad in 1904, when it took over the Canal Zone. The canal practically follows the bed of the original railroad. Therefore a new railroad had to be built. Next to the Panama Canal the first Panama railroad stands out among the greatest engineering feats of the past century.

### QUESTIONS AND PROJECTS

1. Sketch a map of Central America showing the various roadways across the Isthmus.
2. Explain why the sun rises over the Pacific and sets over the Atlantic at the Canal Zone.
3. Why did Balboa call the Pacific the "Great South Sea"? Can you find how the Pacific finally got its name?
4. What was the first railroad connecting the Atlantic and the Pacific?
5. How did the discovery of gold in California bring about the building of the Panama railroad?
6. Why was it so difficult to construct this railroad?
7. Give a character sketch of one of the men mentioned in this chapter.
8. Make a list of twenty-five words, taken from this chapter, that can be used for a spelling-lesson.
9. Find out who owns this railroad at the present time.
10. What effect did the completion of the Panama railroad have upon the development of our own country?

## CHAPTER V

### PLANNING A CANAL SITE

VAINLY did Columbus seek a waterway through Central America. "If I can find an opening through this country," said he, "I shall surely find India." The failure to accomplish this disappointed and embarrassed our gallant navigator. Though the discoverer of America failed in his attempts, yet he inspired others to unravel many mysteries and find hidden passages. Magellan passed through the strait that bears his name, and circumnavigated the globe. Then in the twentieth century Amundsen found the northern passage.

Cortes, a Spanish explorer, proposed a canal across the isthmus. Saavedra Ceron, his cousin, discussed with him the bridge of water. This able engineer had much confidence in Cortes. After a careful survey of the country, Ceron presented four sets of plans—one for each region involved: Lake Nicaragua, Tehuantepec, Darien, and Panama.

The king, Charles V, died before he examined the plans and drawings. His successor, Philip II, went into great detail with his advisers concerning the ideas of Cortes. The delay of several months in making a decision weakened his enthusiasm. The tropical climate, the poor transportation facilities, and the large amount of labor and money required discouraged the king and his counsellors. After placing these plans in a vault, his majesty proceeded to forget them.

During the year 1698, about 1,200 Scotch immigrants landed on the shores of Panama. They travelled on foot to the present site of Darien and founded a Scotch settlement. At first the colony flourished in this tropical region. The success attending this new province influenced other people from Scotland to make their



BOAT MARKET AT HIGH TIDE, PANAMA.

abode there. One of their number, William Paterson, drew up complete plans for a canal. The hot climate, the poor living conditions, and the poisonous mosquitoes, that caused sickness and death, discouraged the settlers. When a Spanish Armada appeared on the horizon the survivors decided to return to their fatherland across the seas. Thus the hopes and visions of William Paterson came to a sudden end.

The idea of building a canal lay dormant for many years. Whenever one suggested a waterway, one's associates ridiculed the idea. Though many leaders re-

mained quiet as regards a canal, yet they did much thinking. In the year 1825 Henry Clay urged Congress to dig a canal connecting the Atlantic and Pacific at Panama.

This American statesman created much interest in a waterway. President Andrew Jackson made a treaty with Colombia, which gave the United States the sole right to cross the isthmus by railroad, road, or canal. The other principal nations of the world, especially England, interested themselves in this treaty. We made a treaty with the British in 1850, whereby both parties agreed not to attempt the building of a channel for a period of fifty years. This treaty contained a provision prohibiting any other nation from having a foothold in this region for the purpose of constructing a canal. America and England agreed to protect the interests of any private concerns that wished to attempt the canal.

During the construction of the Panama Railroad, General U. S. Grant visited the isthmus. This distinguished soldier saw clearly the great need for a waterway connecting the two oceans. When General Grant became President of the United States, he communicated with Colombia regarding her attitude toward a canal project.

At that time this South American country owned the present Republic of Panama. For some reason the Colombian authorities lost confidence in America. They became suspicious of our motives and spurned our attempts to make an agreement. Thereupon President Grant turned his attention to the Nicaraguan site, recommended by some civil engineers.



While these discussions took place, Captain James B. Eads, a noted engineer and a builder of jetties, came forth with a scheme which, at first, gained many followers. Captain Eads had successfully constructed the famous bridge over the Mississippi River at St. Louis. The people naturally placed confidence in his ideas.



STREET SCENE, CENTRAL AVENUE, PANAMA CITY.

This distinguished engineer proposed a ship railway across the Tehuantepec. In 1881 we procured from Mexico a charter giving us the right to construct the ship railway.

The proposed route measured about one hundred thirty-four miles from ocean to ocean. The highest point of the route lay seven hundred feet above sea-level. The huge cars, as designed, would have no difficulty in carrying ships having a capacity of 7,000 tons. Engineers computed the entire cost of construction to be about \$50,000,000. The death of Captain Eads put an end to this plan.



A journey through this region reveals the impossibility of a ship railway. The engineers had enough dif-



GORGONA RESERVOIR, CANAL ZONE.

ficulty in building the present railroad. Our knowledge to-day proves the foolishness of constructing a ship railroad that would convey a loaded ocean liner or a

freighter over mountains, across gorges, and through swamps.

Although these ideas seem simple and foolish, yet they invited discussion and aroused a deeper interest in the canal project. While America discussed the site at Nicaragua, a private canal company from France entered negotiations with Colombia. The Colombian officials gave the French permission to dig a canal across the isthmus, although Colombia had refused to give us the same privilege. This treaty between the French Panama Canal Company and Colombia spoiled our plans for the time being for a canal at Panama.

### QUESTIONS AND PROJECTS

1. On a map of Central America locate all the places mentioned in this chapter.

2. In your library find out all you can about Magellan and Amundsen.

3. Who was the first man to advocate the building of a canal?

4. Why did the Scotch at Darien return to their fatherland?

5. Mention the four routes that Cortes offered.

6. Consult a history book for information about Henry Clay. Give a two-minute talk on his life before your class.

7. How did General Grant become interested in building a canal?

8. Why did Colombia refuse to enter into a treaty with America?

9. If Captain Eads had lived, do you think our government would have built his ship railway? Explain.

10. England and America entered into an agreement in 1850. How do you account for this treaty? Was it necessary?

## CHAPTER VI

### THE FRENCH ATTEMPT TO BUILD A CANAL

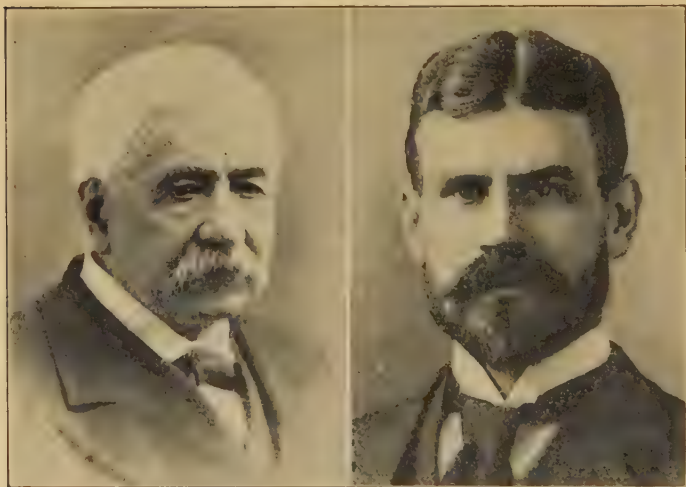
AT the Mediterranean entrance to the Suez Canal stands a towering statue of Ferdinand de Lesseps, the builder of that famous waterway. The sculptor, very fittingly, placed the right arm above the shoulder, in an extended position. This conveys the thought that the great engineer welcomes the vessels of the world to leave the deep blue waters of the Mediterranean Sea and enter his canal.

During his residence in Egypt this Frenchman had visions of a canal connecting the waters of the Mediterranean Sea and the Red Sea. One could not call him a construction engineer, yet he possessed a certain amount of engineering ability. His enthusiasm and ambition won for him many friends, who placed much confidence in him.

By the year 1859 the Suez company had enough money to dig the canal. De Lesseps's plans called for a waterway 99 miles long, 31 feet deep, 180 feet wide at the bottom, and 420 feet at the water-line. The sandy soil and level country made the construction rather simple. De Lesseps completed the Suez Canal at a cost of \$1,000,000 for each mile or about \$100,000,000 for the entire watercourse. The world acclaimed Count de Lesseps a hero when he removed the last barrier.

The world now turned its attention to linking the waters of the Atlantic and Pacific at Panama. Of

course the people of France believed that their popular idol and hero at Suez could also master this project. A group of men organized the French Panama Canal Company in 1879. They made a satisfactory treaty with Colombia for permission to dig this waterway.



COUNT FERDINAND DE  
LESSEPS.

At the time of his first visit to  
Panama in 1879.

DOCTOR JESSE W. LAZEAR.

Who gave his life to prove that yellow  
fever is transmitted by  
mosquitoes.

When both governments ratified the treaty, the company began making plans for the work. The French relied entirely upon de Lesseps, despite his seventy-six years of age, to build the French Panama Canal. Within a few weeks Count de Lesseps presented his plans for a sea-level canal. A difference in the height of water at the Pacific and Atlantic terminals did not occur to him as a possibility. The total

cost of digging a canal, twenty-nine feet deep, would approximately amount to \$214,000,000. To construct the canal, de Lesseps thought, might possibly require eight years.

The nations of the world now waited for the operations to begin. The Suez engineer, with his wife and three of his seven children, arrived at Panama December, 1879. The newspapers of all nations, in their head-lines, announced the beginning of the greatest project ever attempted by man. The count lost no time in laying out the work. The very next day, December 31, 1879, he procured a boat and selected the site of the breakwater on the Atlantic side. During this trip he kept saying: "The canal will be built."

The French made arrangements to open formally the activities of the work on New Year's Day, 1880. At the appointed hour the officials met at the mouth of the Rio Grande for their ceremonies. These included the turning of the first spadeful of earth. Representatives of the principal nations of the world received invitations to take part in these exercises. Our country did not send a delegate. After de Lesseps's speech the Bishop of Panama gave a short prayer and his blessing to the great work that lay ahead of the engineers.

It grew dark before the last orator delivered his address. The party returned to the dock, forgetting the sole purpose of the ceremony—to turn a spadeful of earth. A member of the company produced a pailful of soil from the shore before the guests disembarked and spread it on the deck. As the people gathered about the dry earth, Miss Fernanda de Lesseps, a daughter of the eminent de Lesseps, turned it over

with a spade. Thus began the work of the digging of the Panama Canal.

De Lesseps observed that the greatest obstacle to the work lay at Culebra. The world now focussed its attention on this mountain barrier as the Suez engineer made plans to attack this part of the work. Representatives from many nations and large crowds assembled to witness the beginning of this gigantic task. At the appointed hour a large charge of dynamite failed to explode. The disappointed people considered this a bad omen and began to suspect that the French would fail in this undertaking.

Inaccurate surveying, extravagance, dishonesty, and disease entered very largely into the French failure. According to records the French did not make a careful survey of the region. Lucien Napoleon Bonaparte Wyse, named after the invincible Frenchman, surveyed about two-thirds of the territory and inaccurately and unwisely guessed at the rest. If this surveyor had carefully examined every rod of the proposed waterway, he would have prepared plans for a lock canal instead of a sea-level one.

Reports show that the French wasted their time and money. In the first place they spent too much money on useless and impractical machinery. The officers had at their disposal enough machinery to cover a five-hundred-acre plantation. Thousands of lazy, indolent, shiftless laborers came from Europe not as workers but adventurers. Probably the tropical climate had something to do with their laziness. These so-called laborers received large sums of money without giving value received.



The French paid out millions thoughtlessly. Somehow they did not stop to realize they would eventually exhaust their funds. At Ancon and Colon the army of de Lesseps spent over \$7,000,000 for hospital buildings



DISCARDED DIRT-CARS LEFT BY THE FRENCH WHEN THEY  
ABANDONED THEIR ATTEMPT TO MAKE A CANAL  
THROUGH THE ISTHMUS.

and equipment. Scientists had not yet discovered the causes of malaria and yellow fever. With them the French brought 10,000 snow-shovels, not knowing they could not use them in this torrid climate. Also they included 15,000 torchlights to be used for their celebration at the completion. One firm spent nearly \$200,000 yearly for stationery. Large boats were "knocked down," transported to inland bodies of water, and

reassembled. These they photographed to show the people in France the progress they were making at Panama.

Later investigations proved that de Lesseps's dishonest subordinates stole, cheated, and misrepresented progress. Probably the grand old man of France had too much confidence in his assistants, who took advantage of him at every opportunity. De Lesseps in his dotage lacked the ability to organize the work. Of all the millions sent by the people of France to Panama, one-third was wasted; one-third stolen; and one-third spent on operations.

The French, upon their arrival at Panama, did not realize the importance of health and sanitation. The medical corps did little to prevent sickness. Their board of health did not know that the *stegomyia* mosquito spread the germs of yellow fever and the *anopheles* mosquito inoculated people with the deadly germs of the dreaded malaria. If the French had discovered the causes of the tropical diseases, they would have destroyed the germ-carrying insects.

For seven long years de Lesseps and his army of workers labored in vain. At the end of this period engineers announced the completion of less than two-fifths of the excavation. Of the \$400,000,000 sent by France, de Lesseps spent \$100,000,000 on operations. The French raised their voices against the methods of their former idol, de Lesseps, who had now passed his eighty-third birthday.

In the face of this inquiry the French Government appointed a receiver for the canal and began a court of investigation. Scores of officials gave testimony

which showed the poor judgment and lax methods at Panama. Some of the officers disappeared; a few committed suicide; and others received fines and prison sentences. Weakened by the strain of this disaster, and



*From a photograph by Underwood & Underwood.*

MONKEY HILL CEMETERY, WHERE MANY WHO DIED IN THE  
UNSUCCESSFUL EFFORT OF THE FRENCH TO BUILD  
THE CANAL ARE BURIED.

embarrassed by the investigation, Count de Lesseps, the builder of Suez, spent the last years of his life in sorrow and disgrace.

From Panama City to Colon we may see the evidences of the French disaster. Obsolete cars, covered with creeping vines, rust-covered excavators, piles of obsolete rails, sunken dredges, and old engines, are reminders of the failure. Portions of the French canal,

between Colon and Gatun, give testimony of the waste of time and money.

Did the French really fail? Writers, historians, and engineers often speak of the "French failure." We do



FRONT STREET, COLON, DURING THE FLOURISHING  
FRENCH TIMES.

know they failed in their attempt to dig the canal after spending over \$400,000,000 during their eight or more years of active work. The French did pave the way for the Americans, who, a few years later, mastered the project. It must be remembered the French attacked the mountain barrier before the present development of electricity and mechanics. Perhaps our

American engineers would not have triumphed during the eighties. Our American army profited by the experiences of the French. Thus, it is true, the attempts of the French, though weak and feeble, ably assisted America in bridging the Isthmus of Panama.

## QUESTIONS AND PROJECTS

1. Consult an encyclopædia that will give you information about the building of the Suez Canal.

2. Give the name of the French engineer who successfully completed the canal at Suez.

3. Why do you suppose America was not asked to join the French in the ceremonies attending the opening of construction operations?

4. Write a character sketch of Ferdinand de Lesseps.

5. Be able to spell and pronounce all proper names found in this chapter.

6. From the scale of your map of Panama, estimate the distance from Colon to Panama City.

7. Consult reference works for additional information on the French failure.

8. Write a composition of one hundred words on the topic: "De Lesseps and Panama."

9. Do you think that America or in fact any nation could have dug the canal as early as 1880? Give reasons for your answers.

10. Draw a cartoon: De Lesseps at Panama.



## CHAPTER VII

### THE ARRIVAL OF THE AMERICANS

YOUR fathers and mothers will never forget the anxious moments during the war with Spain when our battleship *Oregon* quietly left the harbor of San Francisco and proceeded at full steam around Cape Horn. Our government had instructed Captain Clark to join Sampson's fleet in the Caribbean to assist in the possible capture of the Spanish warships located in the harbor of Santiago de Cuba. So on March 19, 1898, the famous battleship began the long and perilous voyage of thirteen thousand four hundred miles.

There was great rejoicing in America two months later when this gigantic vessel reached her destination. Immediately the American people began discussing the feasibility of constructing a canal at Panama. Instead of thirteen thousand four hundred miles the *Oregon* would have sailed four thousand six hundred; instead of a journey of two months the *Oregon* would have covered the distance in fifteen days. Thus the people realized the importance of a canal which would assist the navy in protecting both the Atlantic and Pacific coasts. A waterway would help also to develop and promote commerce, thereby benefiting not only America but the world.

At the conclusion of the Spanish-American War, President McKinley focussed his attention on a canal site. To make a careful survey, the President ap-



pointed the Walker Commission, headed by Admiral John G. Walker. After spending some time investigating the various sites, this commission finally reported favorably on both the Nicaragua and Panama routes.

The death of President McKinley, killed at the



BALBOA SEEN FROM A DISTANCE.

Pan-American Exposition by the bullet of a frenzied assassin, shocked the world. When Theodore Roosevelt, the Vice-President, assumed the presidency, he announced his intention to construct the waterway. The President favored the Panama route and a lock canal. Realizing the efficiency of the army, he maintained this department should have full charge of all operations.

First, our government had to procure ownership of the necessary land. Consequently we opened negotiations with Colombia to purchase a strip of land across Panama. From the very beginning America had diffi-

culty in purchasing the site. During fifty-seven years exactly fifty-three different revolutions had occurred in Panama. Our government failed to make an agreement with Colombia. Then the Panamanians revolted, for they realized the great importance of a canal. This revolution lasted only one day. Only one casualty occurred—a sleeping Chinaman met death by a stray bullet.

After this revolution Panama divorced herself from the mother country and became a free and independent republic. Later our government recognized the new republic and began making negotiations for a canal site. Congress agreed to give Panama \$10,000,000 in cash and \$250,000 annually after 1913. From the French our government purchased their property, including machinery, equipment, etc., for \$40,000,000.

On May 4, 1904, America took over the Canal Zone, a strip of land fifty miles long and ten miles wide. Though the cities of Colon and Panama City lay in this zone, they still remained under the control of Panama. The United States reserved the right to control the sanitation of these cities.

The treaty added a new territory to the United States of America. The strip, fifty miles long and ten miles wide, contained an area of approximately five hundred square miles, or about one-fourth the size of the State of Delaware. New problems arose from time to time which taxed the wisdom of our ablest congressmen.

The appointment of an Isthmian Canal Commission became the next task. William H. Taft, secretary of war, received the appointment as director of the

canal operations. The governorship of the Canal Zone went to Major-General George W. Davis. John F. Wallace became chief engineer, and Colonel William C. Gorgas chief sanitary officer. In 1907, President



*From a photograph by G. V. Buck, Washington, D. C.*

*Photograph by Underwood & Underwood.*

COLONEL GEORGE W.  
GOETHALS.

GENERAL WILLIAM C.  
GORGAS.

Chairman and chief engineer of the Isthmian Canal Commission and governor of the Canal Zone.

Member of the third Panama Canal Commission, whose methods of sanitation made possible the building of the Canal.

Roosevelt appointed Major George W. Goethals, of the U. S. Army Engineering Corps, chairman of the Isthmian Canal Commission and chief engineer.

The people of America looked to President Roosevelt for the successful completion of the proposed project. Realizing his important responsibilities, the President surrounded himself with men of proven

ability and worth. Before beginning the work President Roosevelt demanded a healthful and pleasant place for the workers.

This section of the New World offered no inducements to travelers. Lack of sanitation always made a high death-rate. Malaria and yellow fever interfered with the French. Consequently sanitation became the chief factor before beginning the work.

Other tasks loomed up as the Americans took charge. Establishment of post-offices, the opening of banks, and the adoption of a monetary system required much thought. Buildings to house the workers, churches in which they might worship, and schools for their children had to be constructed at the very beginning. For the settlement of disputes and the administering of justice, our government established courts at the Atlantic and Pacific terminals. Before the beginning of operations the United States had to solve serious and complex problems.

### QUESTIONS AND PROJECTS

1. Imagine you travelled on board the *Oregon* during the long journey around Cape Horn. Describe your experiences.
2. Where can we now visit the *Oregon*?
3. In what way did the voyage of the *Oregon* show the necessity of a waterway across Panama?
4. Can you explain why Colombia ratified a treaty with France, but a few years later refused to do the same thing with America?
5. Give arguments for or against: "Resolved, that Panama was justified in divorcing herself from Colombia?"
6. What can you say about our agreement with Panama?
7. Describe the Canal Zone.
8. What great American was chiefly responsible for the Panama Canal?

9. Consult an encyclopædia for a character sketch of Colonel George W. Goethals.

10. Would it not be a good idea for America to erect a statue of Theodore Roosevelt at the Atlantic entrance of the canal and a similar one of Colonel George W. Goethals at the Pacific entrance?

## CHAPTER VIII

### SANITATION—THE GREATEST FACTOR

A GLIMPSE at the towns and cities in the Canal Zone of the early days reveals unsanitary conditions. In crossing the streets of Colon and Panama City one did not see sewers, drains, or hydrants. Mud, filth, decaying vegetables, and foul odors prevailed everywhere in this region. Naturally these places of filth became excellent breeding-places for mosquitoes which carried the germs of yellow fever and malaria.

Sanitation did not interest the inhabitants. Accustomed to dirty streets and back yards, they did not know the meaning of cleanliness. Even though the officials of Colon expressed a wish for a sewage system, their city, being nearly on the level of the sea, would not permit a gravity system. Due to their carelessness and indifference they believed it unwise to construct a sewage-disposal plant. Ex-President Taft once said in speaking of the unsanitary conditions of the streets: "They were muddy in rainy weather, dusty in dry weather, and full of disease in all weathers."

President Roosevelt voiced the opinion that the canal could not be constructed without destroying the mosquitoes and making the zone clean. The government appointed Colonel W. C. Gorgas to "clean up" the zone, destroy the mosquitoes, and make the region a healthful place. Colonel Gorgas's qualifications entitled him to undertake this task, for he had banished yellow fever from Cuba in eight months. When the





CATHEDRAL PLAZA, PANAMA, BEFORE PAVING, MARCH, 1907.



CATHEDRAL PLAZA, PANAMA, AFTER PAVING, AUGUST, 1907.

press of other nations heard of the colonel's plans, they ridiculed his ideas and called him "crazy."

The deadly mosquito had always interfered with health and progress. Science knew certain varieties of mosquitoes carried the poisonous germs of yellow fever, malaria, dengue, and filariasis. To eliminate these diseases, Colonel Gorgas planned the destruction of these germ-carrying insects.

Yellow fever has, since time immemorial, flourished in tropical countries. Even in some of our Southern States physicians have reported cases during the summer months. At one time the board of health reported cases of this disease in Philadelphia. This malady impeded progress in the tropical countries and prevented travellers from visiting them. In Chapter VI, we noted that the presence of the mosquitoes prevented the French from digging the canal.

During our military operations in Cuba our troops suffered from yellow fever and malaria. At the conclusion of the war our medical authorities began a systematic research for the causes of these diseases. The physicians made a remarkable discovery. After performing many experiments, they found out that the bites of the *stegomyia* mosquito infected the patient with these diseases. The doctors proved that bad air, filth, and contact with those afflicted were not direct causes of the disease. The mosquitoes thrived in stagnant pools, filth, and other unsanitary places.

The *stegomyia* mosquito, a small, dark insect having white stripes on its legs, can be easily recognized. On the back of its thorax it has a white, lyre-shaped figure. Since this pest does not hum or buzz and flies

away quickly upon being apprehended, one has difficulty in locating it. Since its home and haunts have been found, yellow fever has practically disappeared. Man has also waged a terrific warfare upon the anophles mosquito, the carrier of malaria germs, and the



*From "Walter Reed and Yellow Fever," by H. A. Kelley.*

The building at Camp Lazear where experiments were made proving that yellow fever is not transmitted by means of infected clothing.

culex, the carrier of dengue, known as break-bone fever, and filariasis, until they have practically disappeared.

To destroy the objectionable mosquitoes in the Canal Zone required effort and time. In fact our government waged a continuous war of two years against these insects before we dared begin operations. The principal task lay in the permanent destruction of the breeding-places. Tin cans, old bottles, barrels, buckets, and other receptacles, where mosquitoes found a convenient place to breed, had to be destroyed. The force of sanitary engineers drained the lowlands, installed

cement drains or conduits, and mopped these out often with oiled mops.

Throughout the region the engineers sprayed oil on the wet marshy land and the stagnant pools. The oil forms a thin film on the surface of the water. The young mosquito comes to the surface during the "wiggler" stage for air. Since he cannot pierce the film of oil, he dies. Lastly, they required all windows to be screened to safeguard and protect the inhabitants from the mosquitoes. We may travel anywhere in the zone to-day, and we shall note the absence of the germ-carrying mosquito. There are so few mosquitoes that it is not necessary to screen the windows. According to official records the last case of yellow fever in the Canal Zone occurred in December, 1905.

Another disease, known as the "plague," confronted Colonel Gorgas. Scientists discovered that this disease was caused by rats. Fleas carrying the germ conveyed this disease to man. To exterminate these pests, the government set about to destroy the breeding-places. Carpenters made the houses rat-proof by raising them three or more feet above ground or by installing concrete floors. The piers and docks the government made of iron and concrete in such a way that rats could not leave the anchored vessels. Then began a systematic work of starving, trapping, and poisoning the germ-carrying rodents. The plague vanished, and no case has been reported since August, 1905.

Through the efforts of Colonel Gorgas and his assistants, these tropical diseases disappeared, and Panama became a clean and healthful place. As a result of his labors the Panama Canal, the greatest engineer-

ing project of all time, became a reality. To-day, throughout our Canal Zone one may see workers spraying the drains and stagnant pools with oil. The natives have now learned that sanitation promotes



ONE-FAMILY HOUSES AT BALBOA HEIGHTS, CANAL ZONE.

These are wooden houses of the Canal-construction period, removed from abandoned villages and reconstructed.

health, happiness, and prosperity. Travellers in the Canal Zone may see paved streets, clean yards, modern sewage systems, and splendid water-supply systems.

### QUESTIONS AND PROJECTS

1. What is meant by sanitation?
2. Invite your school physician to talk to your class on yellow fever and malaria.



3. What did our physicians learn in the Spanish-American War, which, applied to Panama, made possible the construction of the canal?

4. Make a list of the unfamiliar words in this chapter. Repeat them aloud several times so that you can add them to your vocabulary.

5. Explain how oil kills the mosquitoes.

6. Make a poster showing a workman spraying oil on a stagnant pool.

7. Dramatize a meeting of our government officials when they decided on the best methods to exterminate the mosquito.

8. Suggest to your principal the advisability of sending a letter of invitation to other classes in your school to hear your dramatization.

9. How can the many places in America that are infested with mosquitoes cause their immediate extermination?

10. Make a list of the ways in which girls and boys may help to have a clean and sanitary neighborhood.



## CHAPTER IX

### THE AMERICANS BEGIN CONSTRUCTING THE CANAL

THE task of changing the course of the Chagres River, piercing Culebra Mountain, constructing huge locks, excavating 232,000,000 cubic yards of earth and rock, and laying 4,500,000 cubic yards of concrete, would naturally discourage any nation. The French attempted this task but failed. The Americans undertook this great work with zeal and intelligence. Our engineers resolved that the "big ditch" would be completed as planned.

President Roosevelt appointed John F. Wallace, chief engineer, who, May 4, 1904, went to Panama with Governor Davis and Colonel Gorgas. They found the French canal either filled with stagnant water or covered with dense jungle. Most of the French machinery seemed to be in a useless condition, rusty, worm-eaten, and impractical.

With a force of men the chief engineer set about to make a few preliminary preparations. He issued orders to repair the Panama Railroad. Without this railroad it would have been impossible to dig the canal. Soon 58 French locomotives were put into commission. Then they repaired about 1,000 old-fashioned dump cars. With the arrival of nine large steam-shovels, ready for action, Chief Engineer Wallace began work. While they made these preparations, carpenters busied

themselves reconstructing and renovating 400 French houses.

President Roosevelt realized the success of the canal depended upon the mental attitude of the workers. Unsatisfactory living conditions, lack of ice, unsuitable food, scarcity of dishes, kitchen utensils, and furniture, and few amusements discouraged the French workers. The first step in the American programme dealt with making the men happy, cheerful, contented, and enthusiastic.

Naturally the Americans expected to meet with obstacles during the construction. Just as the men began enjoying life in the zone, an epidemic of yellow fever broke out which claimed 37 lives. About this time Chief Engineer John F. Wallace resigned. These unforeseen setbacks, for the time being, caused much discouragement and unrest among the few thousand workers.

After the resignation of Mr. Wallace, John F. Stevens became the chief engineer. From the very beginning he proved to be a good organizer and a friend of the workmen. He imported laborers from Spain and negroes from the West Indies. Much of the heavy work required the services of sturdy men accustomed to the tropics. Finally Mr. Stevens became dissatisfied with his official relations with the government. His resignation caused a great sensation as well as much regret, for the canal workers admired the engineer and his methods.

The resignation of Mr. Stevens greatly disturbed President Roosevelt. The chief executive decided to appoint in this position a man of character, ability,

and proven worth who could not resign. He placed the future operations of the canal under the direction of the army. Then he selected Major George Washington Goethals, chief engineer and chairman of the Isthmian Canal Commission.

The press of the nation asked: "Who is Major Goethals?" The American people could not understand the appointment of the new engineer, for the bulk of the people had heard nothing of his ability or achievements. His Dutch ancestors had settled in New York when they called it New Amsterdam. After his graduation with honor in 1880 from West Point he taught civil and military engineering in the Academy. During the Spanish-American War he served as chief engineer of the First Volunteer Army Corps in Cuba.

After the war he took charge of the Mussel Shoals canal work, which brought him praise from famous engineers. Perhaps this record on the Tennessee River attracted the attention of President Roosevelt.

Upon his acceptance of the new post he became Lieutenant-Colonel Goethals. After making a careful survey of the operations at Panama, the new chief engineer praised the work of his predecessors, Wallace and Stevens. The government made few changes in the policy of the administration or the personnel of the staff.

A large problem lay before the new chief engineer. Only 6,000,000 cubic yards of earth had been excavated as compared with over 225,000,000 cubic yards to be removed. The construction of the Gatun Dam and the locks of Miraflores, Pedro Miguel, and Gatun still loomed as tremendous obstacles. Besides this,

60,000 workers had to be paid, housed, and made happy.

Lieutenant-Colonel Goethals became the manager of the greatest engineering project the world has ever witnessed. No man before his day had general supervision over such an undertaking. Due to his policy of safe construction, rapid progress, and low costs, the Panama Canal finally became a reality.

### QUESTIONS AND PROJECTS

1. Make a colored poster for your classroom showing the arrival of the Americans at Panama.

2. Name some of the great tasks that confronted the Americans.

3. What and where is West Point?

4. Write a suitable editorial for your paper: "The Appointment of Major Goethals."

5. Define the following words: spillway, stagnant, jungle, renovating, zeal, project, engineering.

6. Can you explain why President Roosevelt insisted on having the army take charge of operations at Panama?

7. Make a diagram in your scrap-book showing the comparison between the excavations of the French and those proposed by the Americans.

8. Name five outstanding engineering projects.

9. Write a letter congratulating Lieutenant-Colonel Goethals upon his appointment to undertake the work in the Canal Zone.

10. Assume that you were chairman of a committee that had charge of the ceremonies attending the beginning of the American construction. Prepare an appropriate programme which, of course, you will paste in your scrap-book.

## CHAPTER X

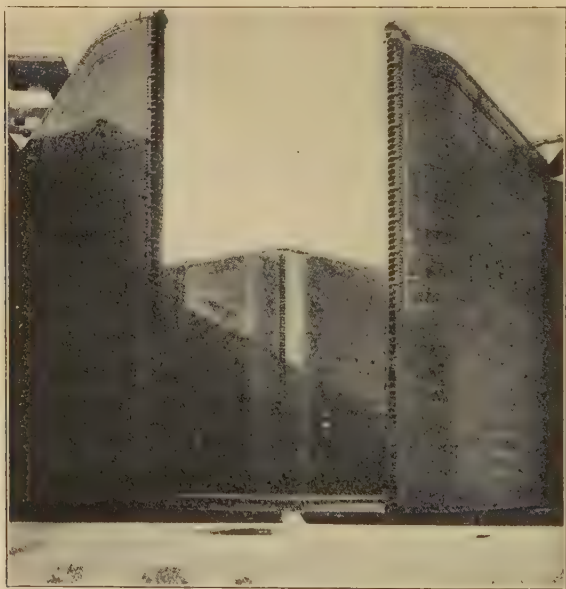
### OPERATIONS AT GATUN

A NUMBER of interesting sights await us at Gatun—the dam, locks, spillway, hydroelectric station, and the emergency dams. Aside from the Culebra Cut the greatest amount of construction took place here. Probably the largest engineering feats of all history occurred at Gatun. Thousands of skeptics maintained the impossibility of constructing the dam which would form a navigable lake, eighty-five feet above the level of the sea.

The Gatun locks, 7,000 feet in length, lie approximately seven miles from Limon Bay or the Atlantic entrance to the canal. The six locks, three on each side, resemble a huge marine stairway that lifts vessels from sea level to Gatun Lake—a perpendicular distance of eighty-five feet. Each lock measures 1,000 feet long and 110 feet wide and is large enough to accommodate any ship that floats.

Let us now pay a visit to these locks. The gates are hollow steel structures, 7 feet thick, 67 feet long, and they vary in height from 45 to 82 feet, and weigh from 300 to 600 tons each. Since 90 per cent of the merchant vessels, using the canal, are less than 600 feet long, intermediate gates divide the locks into smaller chambers. This arrangement not only conserves the water-supply during the dry season but saves time in passing the ships through the locks.

Few people realize the immense size of the Gatun locks. If we could place a six-story building in the upper lock, the roof would not project above the level of the chamber. The engineers used enough concrete in



FIRST AND SECOND LOCK-GATES AT GATUN.

the locks to make a row of six-room houses extending from Chicago, Ill., to Cleveland, O., and that would accommodate a population equivalent to Jersey City, N. J. Beneath the centre and side walls extend three culverts, 7,000 feet long, which admit water from Gatun Lake. These conduits, 18 feet high, resemble somewhat the Pennsylvania tubes beneath the Hudson.



The giant hinges of the operating-gates weigh 36,752 pounds, while those of the protection-gates weigh 38,476 pounds. The government required a test of 40,000 pounds, but the testing-machine showed a strength of over 3,000,000 pounds before breaking. The gates, attached to the hinges in their present position, have over 6,000,000 rivets.

To protect the gates, large chains stretch across the entrances. As the boats slowly approach the locks, the operator in the tower lowers these chains to permit entrance into the chambers. The ends of these chains connect with a large hydraulic machine. Actual tests show these chains will stop a ship moving at the rate of five miles an hour within seventy feet. On several occasions these chains did keep ships from damaging the gates.

Throughout the construction of the locks the engineers always emphasized "safety." If the gates should collapse, what would become of the vast amount of water stored in Gatun Lake? Think of the destruction of life and property! Hence at the head of the locks the engineers provided emergency dams, mounted on pivots and operated either by hand or electricity. In case the gates break, the flow of water can be stopped by these emergency dams. The government requires two drills monthly—one at night and the other during the day. It requires thirty minutes to operate these dams by hand and about two minutes by electricity.

The lock machinery, including the control-house, interests us as much as the locks. The various valves, pumps, and wheels, operated by electricity, are controlled by instruments in the central station. The in-

strument board in the control-room lies on a long table on both sides of which we see strange devices, gauges, switches, and colored electric bulbs. In walking from one end of the table to the other the operator passes the vessel through the locks.

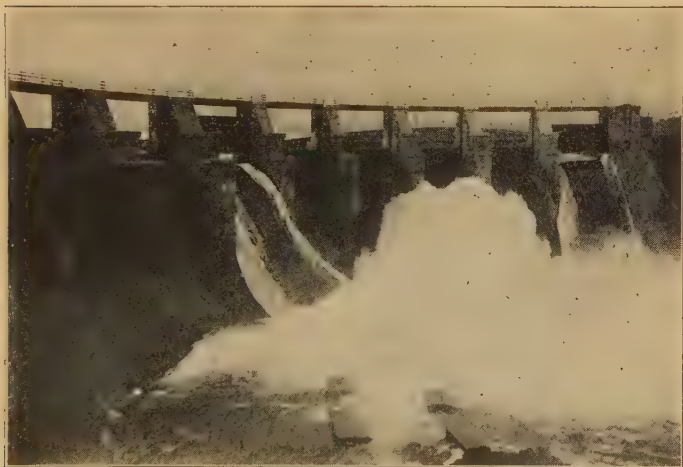
The key to the Panama Canal lies at Gatun. The dam, which covers an area of 288 acres, is one and one-half miles long, one-half mile wide at the base, 300 feet at the water-line, 100 feet at the crest, and 105 feet high. The dam, which contains 22,000,000 cubic yards of earth, extends across the Chagres Valley. If a team hauls one cubic yard of earth, it would require more horses than there are in the United States to transport the material in the dam. If we could procure enough horses and wagons, they would form a continuous line extending three times around the earth at the equator.

From the map we see this dam forms Gatun Lake, the largest artificial lake in the world. It covers an area of 164 square miles or is about the size of Lake Geneva, Switzerland. The dam, covered with a luxuriant herbage, lies inconspicuously on the landscape. Upon the top of the dam, between the locks and the spillway we notice men and women, dressed in white, playing golf on the famous "million-dollar golf course."

The spillway forms a semicircular dam, 1,200 feet long and 285 feet wide, with the outside curve facing upstream. Above the base of the spillway stand thirteen concrete piers and two abutments. There are fourteen openings, 45 feet wide, fitted with steel gates weighing 42 tons. These can be raised or lowered by electricity, thus controlling the level of the lake. At the top of the spillway we find a winding concrete path.

As the water tumbles over the spillway, the roaring, foaming, seething mass reminds us of Niagara Falls.

Below and to the right of the spillway the engineers constructed a hydroelectric station. The water from



GATUN SPILLWAY DAM.

the lake turns the dynamos that convert water energy into electrical energy. The electricity, thus generated, operates the gates, drives the “mules” that tow ships through the locks, supplies light for everybody and everything in the zone, and runs the great shops at Balboa.

### QUESTIONS AND PROJECTS

1. Name several points of interest at Gatun.
2. Sketch a map of Gatun Lake.
3. In an encyclopædia or geography text-book find the areas of lakes having the same size as that of Gatun.

4. Name any other dams that are important. Give reasons for their importance.

5. What river forms Gatun Lake?

6. Select a member of your class to make a model of Gatun Dam and locks out of cardboard, clay, or papier maché.

7. Ask one of your merchants to exhibit this model in his show-window.

8. In your books of reference find the sizes of the *Majestic* and the *Leviathan*. Would the locks at Gatun permit their passage?

9. Explain the operation of the locks.

10. Write a composition of two hundred words on one of the following topics: (a) The Importance of Electricity at Gatun, (b) How Education Solved the Problems at Panama, (c) The Million-Dollar Golf Course, (d) The Purpose of Gatun Dam, (e) Facts About Gatun.

## CHAPTER XI

### THE FAMOUS GAILLARD CUT

ANOTHER interesting feature of the canal is the famous Culebra Cut. Culebra, the mountain barrier of the continental divide, discouraged the sturdy Frenchmen who attempted to pierce it. Regardless of the French failure, the Americans attacked this mountain mass courageously and enthusiastically.

We think of Culebra as an almost irresistible mountain range, rising between Bas Obispo and Pedro Miguel, a distance of nine miles. Travellers to-day seldom hear the name *Culebra*. Colonel D. D. Gaillard, the engineer, had charge of this excavation from 1907 to its completion in 1913. So many slides occurred during the last few years of his supervision that Colonel Gaillard lost his reason and became violently insane. On April 17, 1917, President Woodrow Wilson, in view of the engineer's great contribution to the Canal, changed the name of Culebra Cut to *Gaillard Cut*.

Instead of a mountain barrier, covered with a tangled jungle, there extends a waterway 300 feet wide and over 40 feet deep—the gateway to the great south seas that Columbus sought over four hundred years ago. We might consider the work of building the tunnels of Simplon and Gothard, the Suez Canal, and the New York City water-supply system the play of children as compared to this engineering triumph.

The excavation of this part of the canal stands out

as an unparalleled feat in engineering. From 1882 to 1904, a period of twenty-two years, the French removed about 25,000,000 cubic yards. During the first five years the Americans excavated 39,002,299 cubic yards or 14,000,000 more than the entire French total. In other words, at the end of these five years, the Americans had practically completed one-half of their project. However, they did not anticipate the avalanches of rock and débris that fell into the canal.

The engineers planned to make the nine-mile cut 670 feet wide at the top. Owing to the unforeseen developments, they found it necessary to extend this width. Before Colonel Gaillard mastered this section of the canal 25,000,000 cubic yards of material slid into the channel. In some places to-day the gap measures more than 1,800 feet.

Few of us realize the vast amount of material that slid into the waterway. These slides amounted to one-fourth of the total amount to be removed. From time to time 25 slides occurred equivalent to an area of 225 acres. The largest slide covered an area of 75 acres or as large as some of our New England farms. No wonder Colonel Gaillard lost his reason as a result of these obstacles!

In addition to impeding the progress of construction, these earthen glaciers caused considerable damage to property. In some places the slides buried miles of railroad-tracks, covered steam-shovels, and damaged locomotives and cars. At times the outlook for the final completion of the canal seemed uncertain and hopeless.

Beneath the soft masses of earth lay massive layers



of solid rock. Dynamite played an important rôle in digging the man-made canyon. Each year over 6,000,000 pounds of this explosive assisted man in his victorious march. Workmen drilled holes to a depth of 15 to 20 feet into which they placed sticks of dyna-



CULEBRA CUT (NOW CALLED GAILLARD CUT), IN 1913,  
LOOKING NORTH FROM THE WEST BANK.

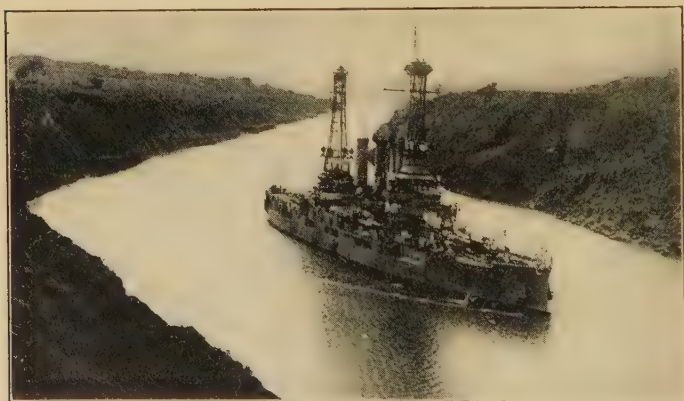
Gold Hill is on the right and Contractors Hill on the left, with the Cucaracha slide in the foreground.

mite. Each day they made between 500 and 600 holes. These holes at the end of a year, if placed end to end, would form a line over one thousand miles long.

Another great task in the construction of the cut lay in the system of transportation. One hundred and forty locomotives hauled 3,700 cars daily to transport the rock and earth to various places along the route. In one year the workers removed 1,116,286 carloads of exca-

vated material. If one could place these cars on a single track they would form a line 5,235 miles long.

The French made or manufactured steam-shovels holding one cubic yard. Within a year the Americans built shovels with a capacity of five cubic yards. Before the completion of the canal, engineers made sev-



U. S. S. MINNESOTA IN THE GAILLARD CUT NEAR EMPIRE, CANAL ZONE.

eral shovels that scooped 15 cubic yards at a time. It required about one hour for one of these shovels to load a train holding 400 cubic yards. Our government used this excavated material in building the Gatun Dam, raising swampy ground, filling in depressions, and constructing the breakwaters at both the Atlantic and Pacific terminals.

American skill, labor, and patience made it possible to complete the Gaillard Cut. Regardless of the many slides, the workers continued with zeal. Ten long years of toil finally mastered this natural barricade. At the

conclusion of this task the workmen had removed over 100,000,000 cubic yards of material. The channel was then wide and deep enough for any two of the world's largest vessels to pass each other in the waterway. The broken divide and the ugly scars, left by the slides, now act as silent witnesses of the struggles of the Americans.

### QUESTIONS AND PROJECTS

1. In your scrap-book sketch a map of the Panama Canal showing this famous cut.

2. Give reasons for changing the name to Gaillard Cut.

3. Let each member of the class give an imaginary visit to Culebra during the construction days.

4. Explain how dynamite is used for blasting purposes.

5. Consult the encyclopædia for information regarding any of the world's famous tunnels. Then compare the amount of material removed from the tunnels with the Gaillard Cut.

6. Write an editorial on the following topic: "The Mastering of Culebra Mountain."

7. What did the engineers do with the material that came from Culebra?

8. Make a list of the difficult words found in this chapter. Be able to spell and pronounce them.

9. Select a member of your class to address your assembly on "The Wonders of Gaillard Cut."

10. In the following sentences fill in the blanks:

(a) The . . . . . engineers failed to pierce the . . . . . barrier.

(b) President . . . . . changed the name of Culebra to . . . . .

(c) . . . . . slides filled the . . . . .

(d) The Gaillard Cut extends from . . . . . to . . . . ., a distance of . . . . . miles.

(e) Over . . . . . pounds of . . . . . were used to . . . . . the . . . . .

## CHAPTER XII

### FARMING IN THE CANAL ZONE

THE latest figures of the population in the Canal Zone show 16,500 Americans, of which 10,000 are soldiers and sailors, and 16,000 natives. The latter include Panamanians, negroes, West Indians, and Chinese. Our government employs about 14,000 men and women in the zone. Let us turn our attention to the 3,000 or more farmers who raise fruits, nuts, vegetables, etc.

In recent years agriculture has developed rapidly. During the construction days the army of workers depended entirely upon imported foodstuffs. In those days the commissary could not procure fresh meats, fruits, vegetables, or dairy products. A demand for fresh farm and dairy products developed with the increasing population since the conclusion of the construction of the canal. Our government has emphasized the importance of agriculture.

The Canal Zone lies wholly within the Torrid Zone and nine degrees above the equator. The temperature in this tropical climate remains practically the same throughout the year. There are two seasons—the rainy and the dry. The dry season begins about the middle of December and continues through January, February, and March; the other months of the year have considerable rain and are known as the wet season.

During the dry season rain often falls; and during



COROZO PALM, PANAMA.



A 17-INCH FLYING FISH OF THE  
TROPICS.



PINEAPPLE FIELD, TABOGA  
ISLAND.

the wet season there are days no rain falls. Rain is usually preceded by thunder-showers which are local. For ten or fifteen minutes the rain falls in torrents. Some of the inhabitants tell us it is safe to reset our watches by these showers which come at the same time each day.

The dry season or the period of slight rainfall, cloudless skies, and steady winds, injures produce. Most northern vegetables, imported into this region, cannot endure the dry season. Tropical vegetables, acclimated to these conditions, have little difficulty in surviving the drought. Even the native grasses wither during the hot season, and scientists have found it impossible to grow our northern grasses in this climate. Irrigation as practised in California, Utah, and Colorado will bring good results in the Canal Zone.

In travelling throughout the zone we notice the absence of herds, such as we see in our own country. Until the farmers water their pastures in the dry season by irrigation, they cannot keep dairies. Consequently most of the milk used in the zone must be imported from our country. Milk is so scarce that parents must procure permits from the proper authorities to purchase it for their children.

During the rainy season fruits and vegetables grow rapidly. The fence-posts, set out around gardens and farms for protective purposes, take root and grow into trees. The farmers find it impossible to keep their fence-posts from developing into large trees. Vegetables, unaccustomed to this climate, develop into fibrous or woody growths, and northern flowers do not, unfortunately, bear beautiful blossoms.



The farmers are beginning to adopt modern methods in agriculture. Some prefer using the "machete" in clearing away vines, a pointed stick in preparing the garden, or a wooden plough in turning the turf. The introduction of farming machinery is stimulating greater interest in agriculture. During the past the hot climate



THATCHED HOUSES IN A NATIVE PANAMA VILLAGE.

and the few wants of the people impeded progress. Since a new civilization entered this section of the world, a boom in agriculture has taken hold of the farming population. In a few years, if we wish to see the primitive agricultural implements, we must visit the museums.

A great deal of the farming is unorganized. The natives care more for the present than for the future. Many farms are only patches or gardens. The Chinese farmers have brought with them the methods used in China. Dressed in their Chinese costumes, they work

industriously in their gardens. The natives raise corn, rice, fruits, tropical vegetables, cocoanuts, and bananas. As soon as the natives become Americanized and adopt American methods, agriculture will forge ahead and supply the population with most necessary foodstuffs.

The majority of the farms lie in the vicinity of the canal. The regions adjacent to the Republic of Panama are quite inaccessible due to the absence of good roads and trails. We reach the remote farms by narrow winding paths. Automobiles and horse-drawn vehicles find these trails impassable.

We find our visit to the homes of the farmers quite interesting. From the roads that skirt the sides of the canal to the boundary-line of the zone we notice many palm-thatched cottages. These resemble the huts found in most tropical countries. Immediately we observe the absence of windows, floors, and screens. The native people are very poor, and their shacks lack the necessary comforts of life. In these thatched cottages often live pigs, chickens, and other domestic animals belonging to the farm. Around the homes we admire the graceful palms and banana-trees growing in great profusion.

The farmers do not specialize in any one particular branch of agriculture. They raise as many different things as both space and energy will permit. We see papayas, chayotes, yams, antigonon, sugar-cane, cassava, corn, plantains, pigeon peas, rice, taniers, and Para grass. On the higher slopes in the vicinity of Culebra we notice beans, mangoes, and avocados. Bananas and cocoanuts we find growing everywhere in the zone.

As mosquitoes and sand-fleas annoy the people so do various kinds of insects interfere with the growth and development of plants. Leaf-cutting ants and other insects and bugs do a great deal of damage to flowers,



CHORRERA, A TYPICAL TOWN OF THE INTERIOR OF THE  
REPUBLIC OF PANAMA.

It is from places like this that the present towns of the  
Canal Zone have grown.

plants, and young fruit-trees. Our government has established a research bureau devoted to the extermination of these pests. Certain fungicides and insecticides are being used with success in controlling these evils.

As regards tropical trees the Canal Zone is wealthy. The common trees are the silk-cotton, palms, anons, bocare, Santa Maria, hucar, acacia, almendro, algar-

roba, mamecillo, and roble. Most of the mahogany and *lignum vitae* have been cut down and converted into lumber for use in the United States. The roble, mamecillo, hucar, Santa Maria, cocobolo, and mispero make excellent lumber. The natives make use of the roble and Santa Maria in the construction of their cayucas or "dugouts," as we call them in our language. Considerable tannin is procured from both the acacia and algarroba.

It is said the first cocoanut-palms came from Egypt. These graceful trees adorn every slope and dot every valley. Aside from being graceful and ornamental, and furnishing shade, the cocoanut-palms furnish the world with a number of important products. The raw nuts are used for cakes, pies, and puddings. Poonac is the name of the residue that remains after removing the oil. Farmers feed this to their cattle. The oil is used in medicines and in making certain kinds of soap. The fibre of the woody husks is called "coir," and from this they make rope, door-mats, mops, and baskets.

The trees grow best near sea level. They require much water, but will not grow in standing water. It is interesting to see flowers and the ripened nuts growing at the same time. Great scars are visible on the tree trunks, caused by the lineman's spikes the natives employ in climbing the trees for the ripened nuts. Some of the nuts are gathered before maturity. These they place in a cart and peddle along the streets. For a few cents we purchase a green cocoanut and drink its sweet milk.

## QUESTIONS AND PROJECTS

1. In what zone is our dependency at Panama?
2. The Canal Zone lies about nine degrees north of the equator. How many miles is this?
3. Consult a geography text-book that will tell you about the rainy and dry seasons.
4. What can you say about the population of the Canal Zone?
5. Can you explain why our government employs so many men and women at Panama?
6. Our government has printed a number of different pamphlets dealing with the Panama Canal. These may be procured through your librarian or by addressing "The Panama Canal, Washington, D. C., or Balboa Heights, Canal Zone."
7. Appoint a member of your class to make a native cottage in miniature.
8. Name some of the products that the farmers raise.
9. Do deciduous or coniferous trees grow in the Canal Zone? Explain.
10. Reread this chapter. Then make a list of ten suitable questions that could be used for a test.

## CHAPTER XIII

### IN JUNGLE LAND

IN this tropical region we come in contact with many kinds of reptiles, birds, and mammals we do not see in our own country. Some of us have seen them in the circus or the zoo. A journey through their habitat will help us to understand them better.

Alligators live in nearly all the streams and pools. Floating in the water, they resemble a darkened or partly decayed log. They come to the beaches where they bask in the hot rays of the sun. While the alligators are considered quite harmless, yet we avoid their companionship. Owing to the presence of alligators we never see bathers in the canal, and seldom in the streams.

In many parts of the world, hunters shoot the alligator for his hide, which is used in making numerous articles. The alligator is seldom hunted here by Americans except for sport and then usually with a camera. In some parts of our country, especially Florida, alligator farms have been established. While several capitalists have considered the establishment of alligator farms in Panama, yet, at the present time, none exists.

In the interior a few natives make a business of catching these reptiles and exporting their hides. These natives creep silently upon a sleeping alligator and kill him with a sharp spear or bow and arrow. Sometimes they cover a piece of hardwood with a layer of meat



and thus lure the alligator to his destruction. When his sharp teeth pierce the wooden block, the alligator cannot open his mouth. The native then rushes upon the alligator, fastens a rope around his neck, and tows him to shore.

Have you ever seen the nine-banded armadillo in



AN ALLIGATOR HUNT, BAYANO RIVER, PANAMA.

the zoo? The early Spanish explorers called him the "armadillo" because of his coat of armor. This little animal resembles an opossum with a shell on its back. The upper part of his body is covered with large, strong scales, a helmet for his head, a buckler for his shoulders, and a series of rings to protect his tail. If you approach him suddenly, the armadillo rolls himself into a ball and covers himself with his strong armor. Like an opossum he may play he is dead. If you retire a few yards, the armadillo will dig a hole quickly and disappear. This slow-footed, harmless, armored animal prowls through the jungle looking for insects,

especially ants, and any kind of worms, which he eats with great relish. Sometimes these little creatures vex the native farmers when they dig up certain roots looking for insects. In our travels we find Panamanians who eat the white, tender flesh of the armadillo.

Another slow, timid, and harmless animal that inhabits the matted jungle is the ant-eater. He derived his name from the fact that he subsists chiefly upon ants. Were it not for this shy animal, the ants would practically destroy all vegetation. Nature has apparently developed him for the purpose of devouring the destructive ants. With his feet he ruins the sandy hillocks of the ants; with his long, narrow, smooth tongue, always covered with glutinous saliva, he procures meals which to him are relishing and satisfying.

The jungle is infested with the much-dreaded boa-constrictor, a huge snake, oftentimes attaining a length of more than twenty feet. From the sea to the highest mountains, and from the marshy places to the dense forests he makes his habitat. Very fortunately Nature did not equip this muscular reptile with fangs or venom. It is true, but quite difficult to believe, these boas are practically harmless and will retreat to a secluded spot if they are not disturbed or attacked. In tramping through these jungles we must be careful to guard against all snakes, as some of them are quite dangerous. To be bitten by some poisonous vipers means a painful death.

The natives consider the jaguar among the most dangerous animals. He usually lives in the wooded country and the dense jungles. Hunters sometimes procure specimens having a length of over ten feet from

the nose to tip of tail. This tricky, flesh-eating animal, larger than a leopard and yet resembling one, will attack men, horses, cattle, and other animals. His principal diet consists mostly of monkeys and tapirs which he finds without difficulty.

What a strange animal is the iguana! Is it a reptile or a mammal? Perhaps he may be the remains of some prehistoric animal that inhabited the tropical regions centuries ago. At first we think he resembles a lizard, such as we see along our brooks, only he is much larger. Sometimes he attains a length of over six feet. With his round head, covered with large scales, and mottled skin, he presents an interesting picture as he feeds on fruits, fungous growths, or insects.

The iguana lays from four to six dozen eggs, about the size of pigeons' eggs, in the sand where the heat of the sun hatches them. The natives train their dogs to hunt these reptiles without injuring them. People of most classes relish the eggs and delicate flesh. A few are sometimes poisoned by them. If a law is not passed protecting the iguana, it will soon become extinct.

Before entering the jungle the natives caution us to look out for the warree, a kind of wild boar, covered with coarse black bristles. It is easy to identify the animal as a warree, because of its white head and breast. The warrees usually travel in herds or droves of fifty or more for protection against their enemies, especially the jaguar. They cannot outwit this sly and intelligent beast, for he will sit in a tree, concealed by leaves and branches, bounce suddenly upon the unprotected warree, kill him, and then jump back into the tree before the others attack him. When the warrees

go away, the jaguar will then carry away his slaughtered prey. In passing through the jungle, we are careful about disturbing these animals. If you do, it may be necessary to spend a day or so in the tree-top, or until the warrees go away.

Have you ever seen a tapir in the zoo? He is probably one of the most peculiar animals in the tropics. While in size he resembles a small donkey, yet he has the appearance of a hog. This deep brown swinish animal, in going through the jungle, makes as much noise as the rhino in Africa. How interesting to watch the young tapir with yellow stripes and spots trailing its mother through the dense brush! The tapir lives principally on young shoots, fruits, and vegetables. During the rainy season we find the tapir in large numbers along the banks of streams browsing on the different kinds of grasses. This harmless animal does not attack us, but his nightly visits to our camp cause a little uneasiness. Natives do not make a practice of hunting the tapir. Those who have eaten his flesh say it closely resembles beef.

Everybody enjoys watching a monkey, attached to a long string, dancing in the street to the tune of a hand-organ. Did you ever wonder about the habitat of these playful and trained pets? Many of these monkeys come from the jungles of the zone, where they live in companies and colonies. Like the warree the monkeys enjoy companionship. Our presence in the woods frightens these creatures, who set up a ceaseless and noisy chattering which makes us think there must be a million of them ready for an attack. The male monkey makes most of the noise, while the mother

monkey in protecting her young only chatters and scolds. It is quite amusing to see the mother monkey make her escape with her two babies. Carrying one in her arms while the other rides on her back with its arms about her neck, the mother climbs from branch to branch until she passes what she thinks is the danger zone.

We see few specimens of the so-called white-tailed deer that is so common in New Jersey and New York forests. These deer, we should be proud to say, are hunted more with the camera than with the rifle. The dense jungle makes it difficult for a deer to flee from its pursuers. Hunters sometimes catch these unfortunate animals in the thick brush and bring them home, where in a short time they are tamed.

Paroquets, parrots, egret, humming birds, white heron, black vultures, and innumerable birds of various sizes and colors make their habitat in the zone. We notice that the parrots fly in "pairs." This makes us wonder about the derivation of the word *parrot*. The parrots, known for their brilliant and gaudy plumage, and their cousins, the beautifully crested cockatoos are among the most handsome birds in the tropics. Among the birds in the world the parrot is the best talker and the poorest flyer.

Throughout these tangled and almost untrodden jungles we miss the song of the thrush, the three notes of the whippoorwill, the sweet call of the lark, the chirp of the robin, and the noisy scolding of the king-bird. The absence of our northern bird friends reminds us forcibly of our own streams, forests, and homes. Nevertheless we soon make friends with the ugly-

looking pelican, the white and blue herons, the wily humming birds, and other well-known tropical birds. It is true, however, new friends cannot take the place of our lifelong ones in the northland.

### QUESTIONS AND PROJECTS

1. What do you mean by Jungle Land?
2. Define reptile, bird, mammal.
3. Make a list of the various kinds of life found in this region.
4. Write a description of your favorite animal, using at least 100 words.
5. Be prepared to give a four-minute talk on the following topic: My First Visit to the Zoo.
6. Give arguments for or against: "Everybody should be an active member of the Audubon Society."
7. Name all the wild animals that are to be found in your State.
8. What are you doing to protect them?
9. Procure pictures of all wild life mentioned in this chapter and paste them in your scrap-book.
10. Every child should own a copy of Wood's "Natural History." If you do not own a copy, borrow one from your library and read more about the animals that are found in the jungles of Panama.



## CHAPTER XIV

### THROUGH THE CANAL

To understand the operation of the canal, and to enjoy the many worth-while sights in this region, let us take a trip through the Panama Canal. We shall make the acquaintance of Captain William Falk, a veteran pilot of many years' experience. Through the courtesy of this navigator, we shall anticipate a pleasant journey from the Pacific to the Atlantic.

Before daylight we leave the Tivoli Hotel, at Ancon, owned and operated by our government. In the heavens the Southern Cross, not visible in our country, looms up brightly near the inky horizon. As we reach the dike which extends from the mainland beyond Panama City to Naos Island, streamers of red and gold shoot out of the Pacific and disappear near the zenith. Then the sun, a disk of fire, peers forth and daylight quickly takes the place of darkness. On this dike, which forms the neck of a small peninsula, connecting the Fortified Islands—Naos, Flamenco, and Perico—we meet the pilot, Captain Falk.

In the hazy distance lies a group of ocean-going vessels, the smoke from whose stacks lifts slowly skyward. During the night these ships arrived at quarantine, the Pacific entrance to the Canal. In the light of the morning sun their broad, lustrous sides glisten like polished silver. The sun, you must remember, rises over the Pacific. We consult our map and find Panama is

shaped like a letter "S" which makes the Pacific lie at the eastern end of the canal.

Presently a number of other pilots, Captain Falk, and our party board a government launch which conveys us to the waiting ships. There are at least twelve vessels from foreign lands, each flying the flag of her own country. Captain Falk had been assigned the *H. H. Rogers*, a huge twin-screw oil-tanker, whose home port is Bayonne, N. J.

Finally, Captain Falk climbs aboard and takes his place in the pilot-house. He will now direct the vessel that carries a cargo of 100,000 barrels of crude oil. We climb the rope-ladder thirty or more feet to the deck of the ocean-going vessel, where Captain John Alexander Ross greets us.

As we approach the pilot-house, a view of exceptional charm unfolds itself. The blue of the Pacific blends perfectly with the blue of the heavens; at our right lie the Fortified Islands, connected by a man-made dike with the mainland. These islands, with their tops removed to house the big guns, resemble, as we say in solid geometry, cones of revolution. Panama City, above which towers Ancon Hill, amid palm-fringed trees, looms up as a tropical paradise. On our left lies Palo Seco, a noted leper colony, which tourists seldom visit.

A feeling of wonder and awe comes over us, as the ship glides slowly into the entrance of the man-made waterway. As we peer over the bow of the ship in the direction of the Miraflores locks, we note the size of the canal, 300 feet wide and deep enough for the largest ship to navigate. We marvel at man's ability

in mastering this project. In a period of twenty years the French had failed; but the Americans, 60,000 strong, in a period of ten years, brought to pass the dream of Columbus—the gateway to the Orient.



PALO SECO LEPER-ASYLUM.

The type of quarters built by the patients.

Captain Falk, who for years has been a pilot, points out various landmarks, mountains, villages, etc. Though he has seen them hundreds of times, yet he delights to tell us about them. On our right towers Ancon Hill, like a sentinel, fringed with tropical shrubbery. At its base lies picturesque Panama City, whose red-tiled roofs gleam in the morning sunlight. Beneath the summit of Ancon float filmy clouds that add a mellow tone to the charming scenery.

Looming up behind Ancon Hill, two miles west of Panama City, is the village of Balboa. They formerly called it La Boca, but recently named it Balboa, in honor of Vasco Nunez de Balboa, who discovered the Great South Sea or the Pacific.

The *H. H. Rogers* slows up for the agents of the line



THE PRADO AND CANAL ADMINISTRATION BUILDING  
AT PANAMA.

to transact business and to take on several laborers to assist in passing through the locks. A hydroplane which will deliver mail from Cristobal soars above Balboa. Before our vessel proceeds, we admire the Administration Building on the slopes of Ancon Hill, the government shops, and the huge dry dock capable of admitting any vessel in the world.

After leaving Balboa, we notice the Panama Railroad, threading its way through Corozal. The town,

nestled among stately palms, and with its red and gray-tiled houses, presents an indescribable picture. About this section rise clusters of round-topped hills of different shades and tints of green. At this place a dike during construction days kept the waters of the Pacific from flooding the work farther inland. On August 31, 1913, engineers blasted the dike with dynamite. The waters rushed into the channel and made navigation to Miraflores locks a reality.

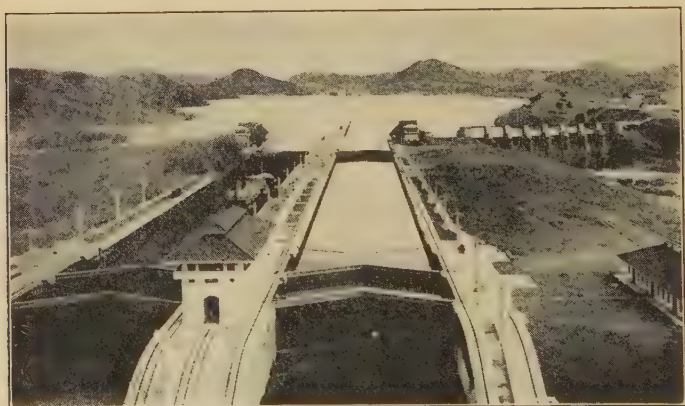
Along the banks a number of drowsy alligators bask in the sunshine, apparently fearless of the passing ship. The remains of the dynamited dike, the dilapidated trestle, partly submerged barges, and obsolete French dredges attract our attention. We inquire about the white posts, with black numbers, placed at 500-yard intervals along the waterway. These, the captain explained, give the canal officials our exact location in case of accident or delay.

From the Pacific end of the canal we have now steamed exactly eight miles. The Miraflores locks become discernible in front of us. In the silvery light, flanked and backed by conical-shaped hills of green, these locks present a striking appearance. At the end of the pier that juts into the channel a large hand, like that of a clock, extends to the right, thus indicating our lock. If the hand points perpendicularly, then ships must not enter; if the hand points to the left, then ships enter the other set of locks.

To pass over the great Continental Divide we now make use of the locks. The locks may be likened to a double-tracked railway, permitting ships to pass through them in the same or opposite direction at the



same time. When we approach the right lock, the tower-operator lowers the chain fender, which protects the gates. Then four electric locomotives, or "mules," as the employees call them, take complete control of the vessel. As these begin to tow us, the first pair of gates opens to admit our ship. Nothing can be



A GENERAL VIEW OF MIRAFLORES LOCKS.

heard but the noise of the towing "mules" pulling us into the lock. When the vessel passes wholly within the lock, the large steel gates close silently. Water enters the chamber and our vessel rises rapidly in the lock. Within seven minutes water from Miraflores Lake, through the 150 valve-holes in the bottom of the lock, raises our ship  $28\frac{1}{3}$  feet, or high enough for us to pass into the next lock.

The gates in the next lock open and the electric mules tow our vessel into it. We notice the nicely kept lawn on both the central and side piers, the rat-



proof construction which prevents these rodents from escaping from the vessel to the mainland and thus spreading disease, the electric-light pillars, and the emergency dams.

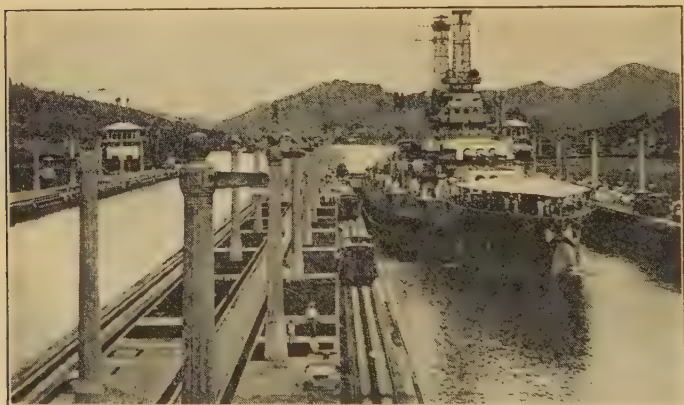
The "mules" stop our vessel in the upper locks. As the gates through which we passed close, the boiling, seething water in the chamber indicates we are slowly rising. As in the former lock, it requires seven minutes to lift our vessel  $28\frac{1}{3}$  feet to the level of Miraflores Lake. The gates open, and after the electric mules tow us out of this latter chamber, we sail under our own power into the lake in the direction of the Pedro Miguel locks.

After a sail of a mile and a half on this muddy-colored lake we arrive at the Pedro Miguel locks, which the employees call "Peter McGill." The hand on the jutting pier points to the left, thus indicating the lock for us to enter. In this lock the water lifts us  $28\frac{1}{3}$  feet, as in the Miraflores, to the waterway that extends through the Gaillard or Culebra Cut. At the present time we have journeyed practically ten miles from the Pacific, and the locks have lifted us 85 feet to the highest elevation of the canal. Now we proceed under our own power thirty-two miles to the Gatun locks.

The waterway threads and winds itself through the Gaillard Cut. On both sides are high banks and cliffs, fringed with a dense growth of vines and shrubbery. To our right stands a conical-shaped hill, 300 feet high, at whose top projects a signal-station. Skirting its base are the homes of canal employees. On our left rises high above the neighboring landscape another hill of conical shape with rolling sides densely clothed

with various kinds of tropical trees. As the ship glides through the murky waters, thatched-roofed huts nestled among palm-trees appear cozy and attractive.

In passing through this barrier of the Continental Divide we are conscious of man's struggle against the



U. S. S. *NEW MEXICO* IN THE PEDRO MIGUEL LOCKS.

forces of Nature and his final triumph. It seems almost unbelievable that the attacking army could, in the space of a decade, in the face of countless obstacles, remove over 50,000,000 cubic yards of material. Nowhere are the towering sides less than 120 feet high; and in places the green and red colored sides rise more than 500 feet, or nearly as high as the Washington Monument.

Silently we view the two famous hills—Gold Hill on our right and Contractor's Hill on our left. These towering hills, over 500 feet high and with their glistening and protruding rocks covered with patches of

tropical jungle, remind us somewhat of Delaware Water Gap. Now and then on the sides of these hills we observe brown, red, and gray colors, not covered as yet by vines or trees, caused by the material which left the slopes and partly filled the channel. Through the man-made gap we see the tiny village of Culebra, amid palms and mahogany, the former headquarters of the chief engineer, Lieutenant-Colonel Goethals. About this town are scars made by the avalanches that swept down the slopes.

After passing La Pita, the sharpest bend in the canal, we admire green hills, tropical forests, and luxuriant vegetation. On our right Gamboa, with its penitentiary, looms up, and just beyond the Chagres River impounds its waters into this man-made waterway. At this point Christopher Columbus sailed up the river looking for the short route to India.

A new sensation comes as we leave Culebra or Gailard Cut and enter Gatun Lake, the largest artificial body of water in the world. Flocks of wild ducks by the thousand fly in front of the ship. On all sides stand trunks of myriads of trees, dead sentinels of a living past. Many of these stumps interfere with the transit and cause some danger to ships. The green islands of the lake remind us of those in Lake George, N. Y.

"Do you see yonder hill in the distance?" asked Captain Falk. The pilot points out this cone-shaped hill, known as Balboa Hill, rising high above the landscape. Tradition says the renowned explorer climbed to the top of the lofty eminence and discovered the Pacific. Tourists often climb to the summit of this historic hill, where they have an unobstructed view of both oceans.

With excitement we view the Gatun locks, dam, and spillway. From the pilot-house these appear in one long silvery line in the afternoon sunlight. How interesting to watch a huge vessel rising in the third



*Courtesy of the Panama Pacific Line.*

S. S. BELGENLAND IN THE PANAMA CANAL.

or upper lock! It is the *Panaman*, an American vessel from New York. As the ship rises higher and higher in the lock she appears like one approaching us from beyond the horizon.

Those of you who make a trip through the Gatun locks will never forget it. Beyond the locks stretches Limon Bay, whose white-capped waves merge with the canopy of heaven at the horizon. Beneath the rose-

tinted clouds stand the twin cities of Colon and Cristobal. On our left the Chagres River, after leaving the spillway, dashes furiously until it joins the leaden-colored sea.

Realizing our ship floats eighty-five feet above the Atlantic, we marvel that within a space of thirty minutes our vessel will be safely lowered to sea level. The locks at Gatun resemble those at either Miraflores or Pedro Miguel. By a reverse operation we are lowered  $28\frac{1}{3}$  feet in the upper lock, the same in the middle, and likewise in the lower lock, or a total of 85 feet.

After passing through the Gatun locks we sail along the seven-mile stretch from Gatun to Limon Bay. Plainly do we see the Toro Point Breakwater, which protects the entrance to the canal. At the end of the silver breakwater lingers a gray-clad craft nodding in the evening breezes.

Suddenly Captain John Alexander Ross, of the *H. H. Rogers*, appears in the pilot-house, takes the wheel of the vessel, and points her prow in the direction of the sea-lane. Captain Ross orders the sailors to throw the rope ladder over the side of the vessel. Cautiously we disembark in the reverse manner as of the early morning and take our places in the government launch and return to Cristobal. With more than ordinary interest we watch the gray vessel glide silently past the blue horizon. Thus ends our fascinating trip of fifty miles from the Pacific to the Atlantic in twelve hours, or from daybreak to dusk.

## QUESTIONS AND PROJECTS

1. Assume that you accompanied the author on the *H. H. Rogers* through the Panama Canal. Write a letter to your parents describing your adventures.

2. Why are Naos, Flamenco, and Perico called the Fortified Islands?

3. Appoint a member of your class to make a model of the Panama Canal showing all points of interest. Use clay, papier maché, or sand in making the construction. Flour or salt can be used to represent water.

4. Invite other classes in your school to see this model, explaining to them the route across the isthmus and the many points of interest.

5. Find out what the encyclopædia says about the "Southern Cross."

6. By using a diagram on the blackboard, explain how a vessel passes through a lock.

7. Make a list of descriptive adjectives you found in this chapter. Use them in original sentences.

8. Name other important canals. How do these compare in size and length with the Panama Canal?

9. Select a boy in your class to explain the use and operation of a dry dock.

10. How does the Panama Canal benefit the world?



## CHAPTER XV

### OVER THE CANAL

WHOEVER makes an airplane trip from the Atlantic to the Pacific over the Panama Canal will not forget the thrilling experience. In the olden days it took weeks to make the journey from coast to coast. Today an aviator can cover the distance in less than an hour. In sailing on the *H. H. Rogers* we learned about the operation of the locks and enjoyed the many sights along the canal. We do not thoroughly understand the beauty, magnificence, and operation of the famous waterway unless we can view it from an airplane.

Through the courtesy of our good friend, Lieutenant R. T. Zane, a veteran air-pilot, we procure permission to fly with him in a government 400 horse-power De Haviland biplane. After breakfast we motor to the hangar on France Field, located about three miles from Cristobal. While the mechanics inspect the craft we put on suits, helmets, goggles, and coats, heavily lined with cork. These coats will keep us from sinking in case we make a forced landing in the canal.

The pilot climbs into the cockpit, tests the motor himself, and examines the gauges for gas and oil. The motor revolves slowly as we take our places in the pit back of the aviator. The motor roars like the booming of cannon, flashes of fire pour out of the exhaust pipes, and the air from the propeller rushes across the cockpit with the force of a dozen hurricanes. Slowly

the airplane taxis across the field, gaining speed each second. When he attains the speed of ninety miles an hour, Lieutenant Zane tilts the plane upward. How startling to see the earth gradually pulling away from us!

We soon climb to an altitude of 2,000 feet according to the altimeter. An unusual and unique view unfolds itself in every direction. Far below we behold people who resemble small specks or ants; the dwellings, with red and gray-tiled roofs glistening in the sunlight, look like toy houses in a kindergarten. The twin cities of Colon and Cristobal, the Washington Hotel, and the Columbus Monument, surrounded by palms, appear dainty and mellow.

The massive plane, after gliding over the twin cities, passes over the stuccoed buildings, belonging to the steamship companies, and the immense docks, and soon flies over the Toro Point Breakwater. The sea-washed rocks and the glassy waves assume silvery, bluish, and grayish tints as we change our positions. How wonderful and thrilling are our first few minutes in the air!

Our airship now hovers over the breakwater, constructed of rock to make a placid harbor for ships. In the bluish distance we have difficulty to see where the sea ends and the sky begins. The Caribbean Sea looks like a titanic mass of glossy satin. Occasionally long ripples disturb the smooth surface, and in places there are dashing whitecaps. Among these we see great gray ships entering the harbor through the opening in the breakwater. Beyond them in deepest blue appear three or four giant submarines practising below the surface

of the sea. As they manœuvre hither and thither they resemble tiny whales frolicking in the billows. Within the breakwater floats a group of San Blas Indians in their cayucas, loaded with produce.

In the gray and hazy distance beyond the summit of the Continental Divide appear the waters of the Pa-



SAN BLAS INDIANS, PANAMA.

cific. Flying above the waters of the Atlantic and seeing the waters of the Pacific give us an unusual thrill. A thousand feet below us Columbus anchored his vessels. At that time he did not know that a few hundred feet above him one could see that body of water that separated him from India, the land of his dreams and visions.

The air monster now hovers above the Atlantic entrance of the canal. A cream-colored vessel approaches the canal, which stretches out in a long silvery line, bordered by a plain of olive green. As we fly over the

French Canal, which crosses our waterway at an acute angle, we admire the same majestic hills that Columbus saw over four hundred years ago. Beyond these rushes the Chagres River, white and foamy, through which the early pirates and buccaneers sailed with their plunder and booty they had stolen from the Indians and Spanish.

Climbing to a higher altitude we look at the Gatun Dam lying across the valley of the Chagres River. The dam, covered with waxy grass the color of an unripe olive, bursts forth as a lateral mountain risen by some internal force. Between the locks and the spillway we discern a number of tiny moving objects, men playing golf on the "Million-Dollar Golf Course," located on top of the huge dam.

From the orange-tinted clouds, through which we pass, the Gatun locks resemble double stairs of three steps each, leading to a king's garden. A gray-painted battle-ship, appearing small as a rowboat, enters the lower lock; four slow-moving "mules," like tiny insects, seem to be towing the vessel. The gates, as small as two thin reeds, open to permit the cruiser to enter the middle lock. The spillway, shaped like an ivory crescent, glitters like a piece of Grecian statuary. The muddy waters of the lake flow over this structure in foaming, seething masses and disappear in the channel below.

Above Gatun Lake an interesting panorama unfolds itself in all directions. This artificial body of water seems to be flanked and backed by jutting slopes above and beyond which grow luxuriant forests. On our left the Panama railroad skirts the lake. Below us lie nu-

merous islands, some flat, others rounded, a few very irregular, and all densely covered with vegetation. Many streams flow into the lake, and myriads of dead



*From a photograph by U. S. Army Air Service. © Wide World Photos.*

THE "SPIRIT OF ST. LOUIS," PILOTED BY COLONEL LINDBERGH,  
CROSSING THE PANAMA CANAL.

trees, that look like the cacti on a desert, project above the glossy surface of the water.

The lake now assumes a kind of brownish hue. We look for the stream whose muddy waters cause this change in color. In the distance below, the railroad-tracks cross the Chagres River, where the jungle rustles and whispers in the mountain breezes. The muddy Chagres emerges from a dense forest devoid of



any signs of human habitation. Through this stream Columbus sailed looking for the route to the Orient. He died without knowing he anchored his vessels in this river only fifteen miles from the Pacific.

Approaching the Continental Divide, we observe conical-shaped hills, probably of volcanic origin, covered with a dense foliage. Above these rise now and then graceful palms of several varieties. How interesting to glide over Balboa Hill, where Balboa ascended to see the Pacific! Behind us lie the deep blue waters of the Atlantic, pretty, refreshing, and charming; in front stretches the Pacific Ocean like a majestic sea of molten glass. If these verdant, cone-shaped hills could speak, what history and romance would be brought to light!

Above the circular plain rises abruptly a long rolling ridge—Culebra Mountain. What is that brown scar that pierces this range? It is the path of the Panama Canal, known as the Gaillard Cut. The brown and gray-tinted walls of stone rise high above the narrow ribbon of water which separates Gold and Contractor's Hills. Along either side of the cut jets of steam pour from the funnels of dredges that work continuously to keep this sea-lane open to traffic. Scars from the gigantic earthen glaciers are quite apparent, and on both sides we see depressions caused by the slides. Only from the air can we understand and appreciate the vast amount of work required to break down this gigantic mountain barrier.

At the terminus of the Gaillard Cut lie the Pedro Miguel locks. Soaring like a sea-gull in the breezes, the aircraft continues above the glistening walls of the



locks until we float directly above the Miraflores Lake. The lake possesses two arms, formed by streams that disappear among the matted vegetable growth.

Like a sentinel Ancon Hill rises serenely above the landscape as if to protect the waterway and guard the cities of Balboa, Ancon, and Panama. The Miraflores locks, nestled at the foot of the lake, appear like silver steps that lead to the Pacific. To our right gorgeous scenery of a pretty sombre green fills up the enchanting landscape; in front the great waterway leads directly to the deep blue of the Pacific; on our left we note paved highways, banana, cocoanut, and mango trees, numerous Chinese gardens, surrounded by palms and picturesque homes.

The red-tiled roofs of the houses and public buildings at Corozal and Balboa gleam in the sunlight. The huge dry dock at this latter city appears larger than the locks of the canal. The Ancon hospital buildings, with dazzling gray stucco walls and shining Spanish red-tiled roofs, present a sharp contrast to the tropical trees that dot the landscape.

Soon the airplane hovers above Ancon Hill, where we admire Panama City with its long narrow streets, quaint Spanish homes, and noble palm-trees. Beyond the seawall and across the canal lies Palo Seco, the refuge of the lepers. A score or more of emerald islands appear above the lustrous surface of the Pacific. Among these are the Fortified Islands, where our government has recently installed several 16-inch guns having a range of thirty-five miles. The rocky man-made breakwater leading from the mainland to these islands forms a cape which reminds us of the Giant's

Causeway in Northern Island. These islands with their tops removed contain a network of batteries to protect the Pacific entrance to the canal.

Having flown from the Atlantic to the Pacific over the Panama Canal, Lieutenant Zane heads the air



GENERAL VIEW OF THE HOSPITAL, ANCON, CANAL ZONE.

monster in the direction of France Field. On the return flight we pass over precisely the same scenery we viewed an hour before. As we approach the twin cities, Cristobal and Colon, France Field looms up. Then banking and zigzagging, Lieutenant Zane brings our faithful aircraft safely to the hangar.

We may fly from London to Paris over the English Channel, soar above the scenic Alps, or glide among our own Rockies, yet no flight for scenery, beauty, or charm can surpass this one at Panama.

## QUESTIONS AND PROJECTS

1. Sketch in your scrap-book the course of the airplane.
2. Perhaps some member of the class has a friend who has made an airplane flight. If so, send him an invitation to address your assembly.
3. Make an outline for a talk on "Flying Over the Panama Canal." Appoint a member of your class to give this lecture before your school in assembly. A map or diagram of the region will assist him in his explanation and descriptions.
4. Write an informal note to your parents inviting them to hear the address.
5. To supplement your study of this chapter, your librarian will tell you how to borrow stereographs and lantern-slides.
6. From magazines, discarded books, or newspapers procure views taken from the air and paste them in your scrap-book.
7. What reasons do you have for believing that this was not an imaginary but an actual flight?
8. Consult your librarian for travel-books and magazines.
9. Select the most interesting description in this chapter and give reasons for your choice.
10. Write a dialogue containing the probable conversation between Lieutenant Zane and the author.

## CHAPTER XVI

### SALIENT FACTS CONCERNING THE CANAL ZONE

THE Panama Canal Act, passed by Congress August 24, 1912, gives the President of the United States power to appoint a Governor of the Canal Zone. The Governor has practically the same duties as those of our country. The Panama Canal and the Panama Railroad are both under his supervision. Despite the fact that the Governor heads the Panama Canal, yet the Secretary of War administers all affairs pertaining to the canal.

The organization of the Canal Zone includes a number of departments that employ over 3,000 white employees and 9,000 colored. Among these departments or divisions are the following: dredging, mechanical, marine, electrical, sanitation, municipal engineering, education, lock operation, fortifications, supplies, health, cattle industry and plantations, accounting, and executive.

What nations use the canal? Every maritime country uses this great waterway. Recent statistics show that more American ships pass through the Canal than those of any other nation. The British are a close second, while the Norwegians rank third, and the Japanese fourth. Since Japanese trade is increasing rapidly, canal officials expect the Nippons to approach Great Britain soon.

The eastern and western seabords of our country

excel in the amount of products shipped through the canal. Next in importance comes the trade between the Far East and our Gulf ports. Trade between Europe and the west coast of America ranks third, while that between the west coast of South America with the east coast of our country and Europe takes fourth place. While the entire world uses the canal, yet figures reveal that American ships surpass those of other nations.

The opening of the Panama Canal reshaped the commercial map of the world. By the Strait of Magellan the distance from New York is 13,135 nautical miles from San Francisco. By way of the canal it is 5,262 miles. Thus we see that there is a saving of 7,873 miles, or about three-fifths of the distance. The Panama Canal has shortened the distance from New York to Guayaquil 7,405 miles, and from New York to Yokohama 3,678 miles.

Obviously the Panama Canal has brought the cities of the world closer together. Farmers in America can purchase Chilean nitrates cheaper. We can now exchange our foodstuffs and other products with the countries of the world more quickly and cheaply. The cost of transportation made these articles expensive, and in many cases prohibitive, before the construction of the canal. Since so much time is saved, many perishable fruits can be transported from our western seaboard to the eastern.

The canal project cost America about \$375,000,000. Payments on this sum, interest, cost of operation, and other expenses must be paid. To meet these expenses our government devised a system of tolls. Loaded ves-

sels pay \$1.25 per ton, and unloaded vessels 75 cents. One hundred cubic feet or 2.83 cubic metres constitute a net ton. If a freight vessel registers 2,500 net tons, the fee will be \$3,125 to pass through the canal. Regardless of these apparently large tolls, all ships profit by using the waterway.

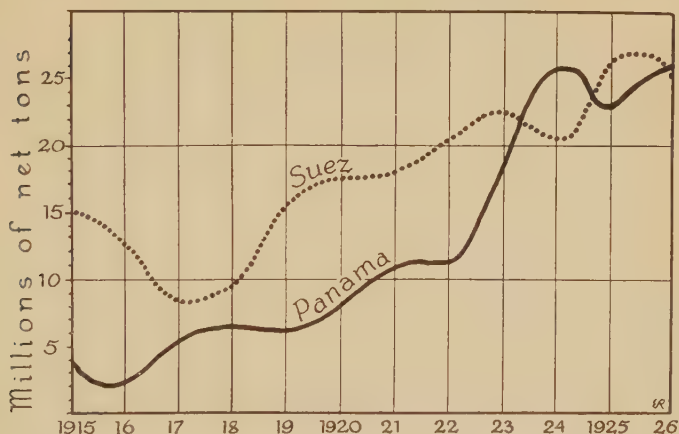
The Panamanian Government reserves the right to use the canal gratis. Ships in government service operated by the United States Shipping Board and government vessels are exempt from tolls. All others pay the required toll. The time will probably come when all American vessels will pass through the canal free.

As the tugboat *Gatun* passed through the canal September 26, 1913, the first ship to go through the waterway, the dreams of centuries came true. In visiting this region we forget the American skill and wisdom that made this accomplishment possible. The sanitation, organization, and perfection of canal operation make an impression upon our minds. The visitors to the Canal Zone do not think of the struggles of the past which resulted in the completion of this project. Now that we have mastered Nature by bridging the Continental Barrier, the world asks: "Will it pay?"

The future alone will decide whether or not the canal will pay. Let us for a moment consider the finances of the Suez Canal. To pass through this canal it costs vessels at the rate of \$1.70 per ton. This amount seems large, but compare the cost with that of sailing around the Cape of Good Hope. At the present time the tolls for the Suez Canal every four years pay for the total cost of constructing the canal.



We cannot say positively that the Panama Canal will bring in large returns. Judging from the steady increase of traffic, we believe the canal will eventually pay for itself. During the present year receipts for a single month have paid for operation, interest on the debt, and the regular amount for amortization. During the World War, Germany sank hundreds of boats



TRAFFIC THROUGH PANAMA AND SUEZ, 1915-1926.

which were used to carry produce, nitrates, and manufactured products through the canal. Also her commercial fleet practically disappeared from the high seas. After the world fully recovers from the effects of the World War, we should expect a growth in traffic.

The canal pays us in several ways. We may use the same fleet to protect both the eastern and western coasts. During the World War we procured nitrates from Chili by way of the canal. If America and the

Allies had not received them quickly it is quite possible Germany would have won the war. Thus in time of war the canal assists us by saving time and shortening distances.

The canal gives us a certain influence among the other nations of the world. Despite the fact we made many mistakes, yet our successes stand out prominently. The world admires our organization, sanitation and health programmes, and engineering skill. Representatives from the foreign countries come here to study our methods. No doubt the world has been benefited by our labors in the Canal Zone. Financially, as a war measure, in bringing nations closer together, and in our influence upon foreign countries—the Panama Canal pays admirably.

Experts inform us that the canal will be inadequate to care for the heavy traffic in the coming generation. What can be done to solve this complex situation? By adding an extra lock to Gatun, Pedro Miguel, and Miraflores, this will help for a time. Even then the canal will be unable to handle all the traffic of the future.

To solve the problem of congestion Congress has discussed the advisability of constructing a canal through Nicaragua. To supplement the Panama Canal, and as a measure of defense, our country will probably construct the Nicaraguan Canal.

During the administration of President William Howard Taft in 1913 Congress voted favorably to consider this project. Honduras and Costa Rica objected to the proposed canal, which delayed action until 1916. At that time we entered into a contract

with Nicaragua for permission to build this waterway. We paid this Central American country \$3,000,000 for the right to construct the canal at any time in the future. Perhaps in our generation we shall see the completed Nicaraguan Canal like our own Panama Canal.

### QUESTIONS AND PROJECTS

1. Who appoints the Governor of the Canal Zone?
2. What are his duties?
3. Name the different departments in the organization of the Canal Zone.
4. What products are shipped from Portland, Seattle, San Francisco, and Los Angeles to New York?
5. Write a composition of one hundred words on the following topic: "How the Panama Canal Benefits the World."
6. Ascertain the tonnage of three of the largest merchant vessels. What would it cost for each to pass through the canal?
7. Account for the facts that government ships and Panamanian vessels have free passage.
8. How long has the canal been open to traffic?
9. State three ways in which the canal pays.
10. Discuss the future possibility of a canal through Nicaragua.
11. In your scrap-book copy the following table, filling in the necessary measurements:

	BY CAPE HORN	THROUGH PANAMA CANAL	DIFFERENCE
Distance from New York to San Francisco	.....	.....	.....
Distance from Seattle to Philadelphia	.....	.....	.....
Distance from Liverpool to Guayaquil	.....	.....	.....

## CHAPTER XVII

### AMBLING TOWARD GUANTANAMO

DID you know that our country has a naval base in Cuba? We shall visit this important possession in the island of Cuba, which our country procured about the time of granting independence to the Cubans. On our way to Guantanamo from Havana let us observe the many points of interest that are of vital importance to every American. In ambling through historic and scenic Cuba we must remember that American history began in the West Indies with the discoveries of Columbus.

To reach Cuba we may take one of several steamship lines from New York, or one may take a ferry which makes frequent trips between Key West and Havana, a distance of ninety miles. After a pleasant voyage of four days from New York we arrive at Havana, the metropolis of Cuba. A journey by train of five hundred and sixty-nine miles by way of Matanzas and Santiago de Cuba brings us to our objective point, Guantanamo.

The first glimpse of picturesque Havana stands out in our minds. The city, in tints of gray and green, looms up brightly in the distance. Most of the dwellings cluster about stately palm-trees and cathedral spires. A narrow channel, probably less than 1,000 feet, passes through the bottle-necked entrance and then expands into a large bay, forming a beautiful land-

locked harbor. On our left tower the venerable gray and brown walls of Morro Castle, which has played such an important part in Cuba's wars and especially the late Spanish-American War; on our right stands



THE MAINE ENTERING THE HARBOR OF HAVANA IN FEBRUARY,  
1898.

Morro Castle is on the right.

La Punta, another important fort which has assisted Morro in defending the city.

During the Spanish régime Havana Harbor was noted throughout the world as one of the dirtiest and filthiest. For decades the city's sewers discharged their contents into this body of water, and very little of the sewage matter found its way to the sea. So much sediment collected in the bottom of the harbor that sea-captains preferred to tie their ships to the wharves or buoys rather than drop their anchors.

When we took possession of Havana our country enforced sanitary measures. Not only the harbor but the city of Havana was dirty and filthy. As a result of the uncleanness, tropical diseases, especially yellow fever and malaria, claimed hundreds of victims each year.



A BIT OF OLD HAVANA.

It is difficult for us to imagine the conditions of the streets. Most of the sewers ran in the gutters of the streets. Within a few months after American occupation the military and sanitary engineers produced remarkable changes. To-day we find a beautiful city, free of the ugly-looking filth, and a magnificent harbor, dotted with pleasure and commercial boats.

Near the centre of this placid harbor float two buoys, about 600 feet apart, each flying an American flag.



What do these mean? These buoys mark the former sites of the bow and stern of the battle-ship *Maine*, which, under the command of Captain Sigsbee, was sunk by a Spanish mine on the evening of February 15, 1898. This terrible explosion caused the deaths of 272 American sailors who slept on the doomed vessel. As a result of this overt act President William McKinley, with the approval of Congress, declared war on Spain. This European country lost to us battles on both land and sea and finally gave up her colonies in the New World.

For fourteen years the wreck of the *Maine*, with her flag flying at half-mast, lay on the bottom of the harbor, with her mast projecting above the surface of the water. What a pity to leave the gallant vessel in this position with her dead! In 1911 America made arrangements with the Cuban Government to remove the sunken ship. Since the vessel lay in about thirty feet of water, our engineers decided to build a cofferdam around the wreckage, patch the holes in the hull, gradually float her, and then tow her out to deeper water for her permanent resting-place.

There have been, as you know, many sad events in American history. Unquestionably one of the saddest was the burial of the ill-fated *Maine*, the former pride of our navy, at sea, after our engineers successfully raised her. At the appointed hour the *Osceola*, a large navy tug, attached a long tow-rope to the *Maine* and proceeded slowly down the harbor. Thus began the strangest and oddest funeral procession ever recorded. Then followed scores of other craft, flying the flags not only of our own but of many nations, that carried hun-

dreds of patriotic American citizens and sympathetic admirers from other lands.

As the procession slowly passed within the shadow of Morro Castle soldiers from this old fort fired a salute of twenty-one guns that echoed and re-echoed among the sea-swept rocks. A brief journey brought the fleet to the ocean grave which lay outside the three-mile limit. The blowing of three blasts by the *North Carolina* signalled the other ships to take positions around the *Maine*. A number of sailors stood prepared on the *Maine* at the proper signal to open the sea-cocks and sluices. As the men opened them they rushed quickly from the sinking vessel, and all eyes were focused upon the sad spectacle. As the band played the "Star-Spangled Banner" the unfortunate *Maine* rocked in the billows until she plunged into her sea-vault forever.

Morro Castle stands on a high promontory at the entrance of the harbor. The word Morro in Spanish means *promontory*. There are three "Morro Castles"—Havana, Santiago de Cuba, and San Juan, Porto Rico. The old fort at Havana consists of thick walls, lonely dungeons, scores of compartments, and a dry moat. During the early part of the war our vessels lay off the surf-beaten coast and hesitated to attack this ancient fort. Many of the old Spanish guns bear the date 1764. The untrained soldiers and the old and crude guns, of which our commanding officers at the time were ignorant, could not offer much resistance to an invasion. Above the castle towers a modern lighthouse, from whose summit we obtain a view of the Gulf of Mexico, the city, and neighboring landscape.

We take a keen interest in the Columbus Cathedral, dedicated to the Virgin of the Immaculate Conception, and one of the three oldest in America. The architecture is typical of all cathedrals built by the early Span-



COLUMBUS CATHEDRAL AT HAVANA.

iards. This structure, with its massive walls, twin towers, and sacred memorials, housed the ashes of Christopher Columbus. His remains formerly lay in the cathedral at Santo Domingo when France took over this latter island. The body of the discoverer of America was later transported to the Cathedral at Havana. Prior to the Spanish-American War the Spaniards removed it to a vault at Seville, Spain. Every day crowds collect about the altar of the church and gaze rever-

ently upon the sepulchre which once held the remains of this immortal navigator.

A magnificent paved street, the Avenida de la Republica, leads from La Punta Fort along the coast. Commercial houses line the south side of the highway; on the north the Gulf of Mexico washes the sandy beach. Along this road stands an imposing monument, erected in memory of those Americans who died on the battle-ship *Maine*. At the base of the monument a number of guns from the *Maine* in silence tell a sad and tragic story.

The first fighting of the Spanish-American War took place at Matanzas, where outer fortifications were attacked April 27, 1898, by Admiral Sampson's flag-ship, *New York*, assisted by the cruiser *Cincinnati* and monitor *Puritan*. Few travellers pass through Matanzas, a journey of fifty-eight miles from Havana, without stopping. This city, a noted seaport on the northern coast, has an American Consul who takes delight in showing Americans the various points of interest. A rope factory, the Yumuri Valley, and the caves of Bellamar attract our attention. The Yumuri Valley, a natural amphitheatre five miles in diameter, with steep precipitous sides, is dotted with cane-fields amid the dark green foliage of graceful palms. The caves of Bellamar remind us of our own Mammoth Cave and the Cave of the Winds in Colorado. The stalactites and stalagmites, composed of limestone, glisten and sparkle like diamonds. A brilliant formation like a miniature Niagara Falls and another resembling our national bird, the eagle, especially interest us.

A journey of approximately twelve hours by train

brings us to Camagüey, a small city lying on a plain 500 feet above sea-level. The Cathedral of La Merced, built in 1628 by missionaries of Our Lady of Mercy, is the chief object of interest. It has a high altar made from 40,000 Spanish dollars. Though the streets contain



PALACE OF JUSTICE, MATANZAS, CUBA.

rubbish and decayed fruits, yet the people seem healthy. We never saw a city where there seemed to be so much idleness. At the station we inquired of a Cuban planter about the occupation of the mulattoes and negroes. With a smile on his face he said in Spanish: "The majority of these people spend their time waiting continuously to see those who arrive on the daily train."

A railroad journey of two hundred miles through tropical Cuba takes us from Camagüey to Santiago



de Cuba, a picturesque city, nestled at the foot of high mountains. Long narrow streets, prominent plazas, and buildings of Spanish architecture greet us. Many streets have gutters through which flow to the harbor



A STREET IN SANTIAGO DE CUBA.

sewage matter. Sometimes we find it impossible to cross the thoroughfares because of the impure drainage in these conduits.

The last battles of the Spanish-American War in Cuba were fought in and near Santiago de Cuba. A four-mile drive takes us to the battle-field of El Caney, where after several days of fierce fighting the American troops under General Shafter won a decisive vic-



tory over the stubborn Spaniards. Climbing to the top of an old stone fort whose sides still show bullet marks we peer over the battle-scarred landscape. The section consists of gentle rolling land covered with pale-green grass, above which grow mango and palm trees.



RUINS OF THE FORT AT EL CANEY.

From the old fort we amble across country to the San Juan hills, where our gallant Theodore Roosevelt, at the head of his Rough Riders, defeated the Spanish. Where the intrepid Americans fought the last battle a semibrick building now stands, from whose top we observe the battle-field. Trenches, barbed-wired entanglements, shell-holes, and bullet-pierced trees are reminders of the days when Cuban freedom swayed in the balance.

Within the shadow of this historic landmark stands the celebrated "Surrender or Peace Tree," a wide-branching silk-cotton tree. Beneath its branches stood General Toral, the Spanish general, when he surren-



THE PEACE TREE, SANTIAGO, CUBA.

Here, in the middle of July, 1898, the terms of surrender were signed by the Spanish general, Toral.

dered to General Shafter. Two small plants mark the spots where the opposing military leaders signed the peace papers. General Toral, dressed in his Spanish uniform, and speaking in his native language, said: "It is by fate that I am forced to surrender to the American army the city of Santiago." Equally impressive were the words of General Shafter: "I receive the city in the name of the Government of the United States." As we approach this tree we notice a number

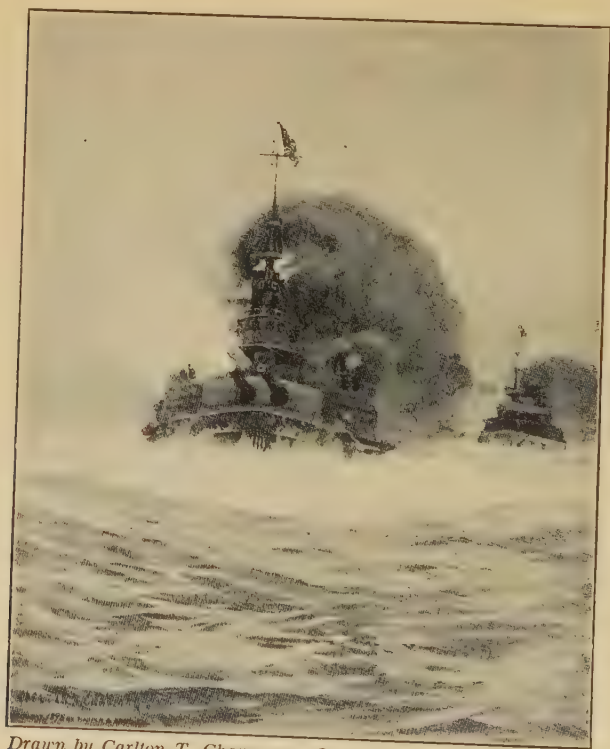
of opened books lying about the base. These large imitation books, made of copper, contain the names of the officers and soldiers whose efforts made the surrender possible.

Leaving the historic tree, we continue our journey in the direction of Santiago de Cuba. In a few moments a beautiful park, surrounded with tropical palms and mangoes, appears in the near distance. There stands in marble a bust of our immortal Theodore Roosevelt. The citizens of Cuba erected it in recognition of his great military services at San Juan.

From the former capital of Cuba let us journey to another Morro Castle which stands on a high promontory overlooking the land-locked harbor of Santiago de Cuba and the greenish blue waters of the Caribbean. Like the Morro Castle at Havana, this ancient stronghold has dungeons, battlements, obsolete guns, a moat, and scores of chambers. A guide takes us to the dimly lighted stone chamber where the Spanish imprisoned Lieutenant Richmond P. Hobson. We recall his capture after his partly successful attempt to sink the *Merrimac* in the entrance of the harbor to "bottle up" Cervera and his Spanish fleet.

Next to Rio de Janeiro the harbor of Santiago de Cuba is probably the most beautiful in the world. Surrounded by high mountains and green-covered hills, the entrance threads its way among towering cliffs in the presence of the majestic Morro. Then the narrow silver ribbon expands itself into a large basin of placid water. The undulating landscape contains brightly colored houses with red-tiled roofs among groups of palm-trees.

In this harbor lay Admiral Cervera on his flag-ship, the *Viscaya*, with the rest of the Spanish fleet, from May 19, 1898, to July 3 of the same year. Near the



Drawn by Carlton T. Chapman. Copyright, 1898, by Harper & Brothers.

THE OREGON OVERHAULING THE VISCAYA AND CRISTOBAL COLON DURING THE BATTLE OFF SANTIAGO, JULY 3, 1898.

entrance to the harbor Lieutenant Hobson tried to close the channel by sinking the *Merrimac*. The wind, the tides, and the terrific fire from the Spanish in Morro Castle hindered Lieutenant Hobson from carrying out

his plans. A portion of the wrecked ship closed part of the channel, for our officers later observed the Spanish dynamiting the sunken ship. This led Admirals Sampson and Schley to believe that Admiral Cervera intended to make a sudden dash for the Caribbean to save the Spanish fleet from capture. One by one the Spanish war-ships were burned, demolished, or beached as the veteran Cervera tried to make his escape. The American fleet won a decisive victory over the Spanish, and Lieutenant Hobson and his valiant men became national heroes as a result of their daring deeds. Nothing in the harbor to-day reveals the location of the vessels of the Spanish that were thought invincible. Neither can we see traces of the sunken *Merimac*.

### QUESTIONS AND PROJECTS

1. Make a sketch of the route from New York to Havana. Name the steamship companies whose boats navigate these waters.

2. Find out about the rise and fall of Spain in America.

3. Assume that you have just toured Cuba. Write a letter home narrating your experiences.

4. Write an editorial for your paper that might have appeared immediately after the sinking of the *Maine*.

5. What part did Theodore Roosevelt take in the Spanish-American War at Santiago?

6. Dramatize the scene: "With Lieutenant Richmond P. Hobson at Santiago de Cuba."

7. Make a list of the proper names in this chapter, showing the pronunciation of each word.

8. Debate the following topic: Resolved, that America was justified in giving Cuba to the Cubans.

9. Draw a sketch showing the arrangement of the rooms in a Spanish house having a patio.

10. Summarize the major facts about Cuba as outlined in this chapter.

## CHAPTER XVIII

### PICTURESQUE GUANTANAMO

AT Santiago de Cuba there are two ways to reach Guantanamo, which lies about forty miles away—one by means of a steamer, which makes irregular trips, and the other by railroad. Since the steamer schedule is quite uncertain, we shall travel by train through the historic country. Riding among palm-fringed estates, by the side of glistening lakes, and over luxuriant hills will give us new experiences.

An odd town with multicolored roofs, flanked and backed by palms, looms up in the blue distance. Before the Spanish-American War this village, known as Daiquiri, consisted of but a few shacks. The place is noted as the landing-place of our American troops under General Shafter. We find nothing here to indicate that the Americans once occupied this section of Cuba.

How did we acquire possession of Guantanamo? We all know that after the defeat of the Spanish our country took possession of Cuba. We did not intend to annex this neighbor of the Caribbean to America. We simply wanted to stop for all time the cruel and heartless practices of the Spanish and to set up a Cuban Republic—which we did. It would have been an easy matter to retain any portion of Cuba. Since the organization of our government the American people have always been honest and just with other nations. Consequently, we made a treaty with Cuba for the possession of Guantanamo.



To understand our agreement with Cuba let us peruse a clause in the so-called Platt amendment: "That to enable the United States to maintain the independence of Cuba and to protect the people thereof



BANANAS AS THEY GROW, POINTING UPWARD.

as well as for its own defense, the government of Cuba will sell or lease to the United States lands necessary for coaling or naval stations at certain specified points, to be agreed upon with the President of the United States."

On February 16, 1903, the President of Cuba signed an agreement to turn over to the United States two harbors with adjacent lands to be used as coaling or naval stations. For our country Theodore Roosevelt

signed the above agreement one week later. The two harbors selected were Bahia Honda, in northwestern Cuba, and Guantanamo, in eastern Cuba. For possession of these harbors and lands our government agreed



CRUSHING SUGAR-CANE IN CUBA.

to pay to the Cuban Government annually a rental fee of \$2,000 during American occupation.

After a period of nine years our officials discontinued the naval base at Bahia Honda. This harbor and its adjacent lands we returned to the Cubans. But Guantanamo still remained in the hands of our government according to the former treaty. More territory was added; the harbor dredged and deepened; and several million dollars expended in developing a modern naval base. Our country now controls the Windward Passage, that expanse of water that separates Cuba from

the Dominican Republic. Thus our navy can better protect our other possessions, Porto Rico, Panama, Canal Zone, and the Virgin Islands.

About the first knowledge the world had of Guantnamo was in 1741. In that year Admiral Edward Vernon, commanding the English forces, took possession of the harbor and named it Cumberland Bay. Lawrence Washington, a brother of our illustrious George Washington, accompanied this British admiral. In memory of the beloved military and naval leader under whom Lawrence Washington served, the Washington estate, near our nation's Capitol, bears the name of Mount Vernon.

From the close of the eighteenth century we may trace the beginning of its history. A number of French refugees from Santo Domingo established peaceful settlements along the shores of the harbor. Until the time of the occupation by American forces the natives spoke French. To-day the older people speak nothing but French, while their children use both Spanish and English fluently.

The beautiful land-locked harbor of Guantnamo, ten miles long and about four miles wide, has a very narrow entrance. In consulting the map, we will find this spacious harbor has two distinct basins—an outer and an inner. In some ways this harbor reminds us of the one at Halifax, Nova Scotia. It is large enough to accommodate all our battle-ships and submarines.

Skirting the shores, which are lined with graceful palms, we note oil-tanks, cranes for loading ships with coal, wharves for small boats, docks for larger ones, a radio station which makes connections with Darien,

the Canal Zone, and Arlington, with battle-ships, and commercial craft. The activities of the harbor seem to be greater than those at Santiago or Havana. Hundreds of negroes and Cubans find employment loading ships with coffee, sugar, and lumber. Other vessels take on boxes filled with limes, lemons, and spices.



NATIVE BOATMEN AT TRINIDAD, CUBA.

Around the wooded shores lie numerous villas belonging to wealthy or well-to-do Cuban planters. These bright-looking houses, with their glowing red roofs, make a pleasant contrast to the green of the landscape. Numerous Americans, either professional or business men from Guantanamo City, have established their homes in the higher regions to enjoy the invigorating climate. Among these homes we find groves of lemon and lime trees as well as tobacco and coffee farms.

The shipping-ports of Guantanamo Bay are at Bo-

queron and Caimanera. A winding railroad connects the latter port with the city of Guantnamo, which lies thirteen miles to the north. Riding along this railroad, we recall the stirring scenes enacted here during



TOBACCO HANGING IN A BARN TO DRY, PINAR DEL RIO, CUBA.

the Spanish-American War. A small force of 600 Americans landed on the sand-dunes at the harbor's entrance, dispelled the Spanish, and hoisted the Stars and Stripes. Within the basin lay a number of our cruisers and battle-ships before they assisted in destroying Cervera's fleet off the coast at Santiago. General Miles sailed from this port on July 21, 1898, with



several thousand trained soldiers for the harbor of Guanica to attack the Spanish in Porto Rico.

Guantanamo City lies at the head of the harbor on a green slope. Flanked and backed by lofty mountains and clothed in various kinds of tropical trees, the city makes an attractive appearance. The city contains approximately 20,000 inhabitants. Chinamen carrying boxes of pineapples on their heads, negroes idling their time away in the parks, little urchins playing in the streets, horses and donkeys, loaded with wood or fruit from the country, and people dressed in white, representatives from many nations, greet us everywhere.

Everything about Guantanamo impresses us. The architecture of the buildings reflects the style of foreigners. We admire dwellings such as we see in France, probably built by the French refugees; buildings with broad balconies, typically Spanish; and structures obviously built by Americans. Some streets are narrow and crooked, like those near the water-front in Havana; and others broad and straight, lined with towering palms. Regardless of the French and Spanish contributions, Guantanamo is genuinely American. Everywhere we breathe that pure American spirit found only where Americans dwell. Long may Guantanamo remain under the flag of our country!

### QUESTIONS AND PROJECTS

1. Draw a map of Cuba showing Guantanamo and its land-locked harbor.
2. Why did our government make arrangements with the Cubans for the possession of Guantanamo?



4. Make a poster of one of the following scenes at Guantanamo:

- (a) A "rookie" viewing the harbor for the first time.
- (b) Gray battle-ships at anchor in the harbor.
- (c) The radio station.
- (d) A Chinaman with a box of pineapples on his head.
- (e) Curious natives watching our boys disembark.

6. Look up the life of Lawrence Washington and tell the class about him.

8. Account for giving up Bahia Honda.

10. Fill in the blanks in the following sentences:

- (a) Our Cuban possession, . . . . ., lies . . . . . miles  
 . . . . . of . . . . .
- (b) . . . . . Shafter of the . . . . . army landed his  
 . . . . . at . . . . .
- (c) Washington's residence, . . . . ., was  
 named in honor of Admiral . . . . .
- (d) General . . . . . left the harbor of . . . . . on  
 . . . . . to attack the . . . . . in . . . . .
- (e) The streets are lined with . . . . . palms, . . . . .  
 balconies, and . . . . . shops.

## CHAPTER XIX

### A TROPICAL GEM

AFTER a five-day sail from New York we sight the Virgin Islands, our new possession in the West Indies. We disembark at Saint Thomas, the capital of the Virgin Islands. The immortal Columbus named these islands after Saint Ursula and her Virgins. The Virgin Islands were formally transferred to the United States of America on Saturday, March 31, 1917, upon the payment of \$25,000,000. Our Secretary of the Treasury, William G. McAdoo, presented a treasury warrant for this amount to our Secretary of State, Robert Lansing, who in turn handed it to the Danish Minister at Washington. If our government had given the Minister gold, the \$25,000,000 would have weighed approximately 48 tons.

During Columbus's second voyage he discovered the Virgin Islands. Unfortunately, no monuments or landmarks tell us where the Spanish ships landed. Columbus found these islands inhabited by dark, copper-colored natives, called Caribs and Arawaks.

According to Dutch history their people settled these tropical gems in 1657. The Dutch did not stay long, for they embarked for New Netherlands, leaving their New World dependency in the hands of the English. As the decades came and passed, several nations attempted to gain a foothold. These "Gardens of the Antilles" finally returned to Denmark in 1801, and the *Dannebrog* waved in the tropical breezes until the Stars and Stripes displaced it in 1917.

The major islands of the Virgin group are Saint Thomas, Saint John, and Saint Croix, which lie practically east of Porto Rico. The minor islands in this group number about fifty. Many of these have no names, and man does not inhabit them. Geographers have charted them, and mariners, sailing through these waters, take every precaution to guard their ships from striking the rocky shoals.

The first island of the Virgin group we shall visit is Saint Thomas. This Caribbean paradise, lying forty miles east of Porto Rico, is thirteen miles long by three miles wide. From an airplane it resembles a verdant mountain range that has risen above the deep waters. Lying on the steamship lines that connect New York and Europe with our Panama Canal, the land-locked harbor at Saint Thomas makes this island an important possession.

Saint Thomas holds the key to the Caribbean. Steamers from Europe to Central America, from our country to South American ports, from the Greater Antilles to the Lesser or vice versa—all pass this island. Saint Thomas, then, is a gateway through which ships from one part of the world pass to the other.

The Virgin Islands, especially Saint Thomas, enjoy a tropical climate. Tempered by the gentle ocean breezes, the climate of Saint Thomas is invigorating and delightful. The trade winds help to make the island an ideal place in which to live. According to the weather bureau, the hottest weather comes in August and September; the coldest in January. Our sojourn in this possession convinces us that the climate is ideal.

It agrees with most types of people. Physicians, according to a wit, have no illnesses to baffle them excepting "old age."

Sparkling blue water, studded with cays, rocks, and about seventeen islands, surrounds Saint Thomas. Water Island and Thatch Cay are not inhabited by man. We decide to see some of these rocky islands, including Sail Rock. So much is said about this "Gibraltar of the Sea" we rent a motor-launch to visit it.

According to tradition, the commander of a French frigate poured shot and shell one night into Sail Rock. The Frenchman thought it was an enemy ship. When the morning sun turned night into day the disgusted Frenchman sailed away, leaving the sides of the rock slightly damaged by his shell-fire. Our guide calls our attention to the marks made by the cannon from the French craft. As we look at the rock from the east it does resemble a ship. No wonder the poor French commander was fooled!

A luxuriant growth of tropical trees once covered this hilly, rough, and rugged island. Many forest-fires, together with the cutting of the trees by the early settlers, ruined the forests on Saint Thomas. West Mountain and Signal Hill, the highest elevations being about 1,500 feet above sea level, contain few springs. The destruction of the forests has caused a lack of water. A solitary river, which is only a small stream, dries up and disappears before it reaches the sea.

In the next two chapters you will learn about our adventures in Saint Thomas and our travels through the scenic island.

## QUESTIONS AND PROJECTS

1. Draw a map of the Greater Antilles showing the Virgin Islands.
2. How would you travel from your home to these newly acquired possessions?
3. Find out the steamship lines whose boats call at these islands and ask them to send you their literature.
4. How did the Virgin Islands get their name? Explain.
5. What is meant by the *Dannebrog*?
6. Retell the interesting story about "Sail Rock."
7. Debate the following topic: The Danes erred in disposing of the Virgin Islands.
8. How long does it take you to count \$100 in dollar bills? Assume that the \$25,000,000 was given to you in dollar bills to count for the Danish Government. How long would it take you to count this amount?
9. Of what use is the weather bureau?
10. The weather bureau is one of the most important departments of our government. Each day, Sundays excepted, this bureau sends to thousands of business men, farmers, navigators, and schools a weather report and prediction which is most valuable. If your school does not receive a copy of this report, write to your nearest weather bureau, and it will be mailed gratis.

## CHAPTER XX

### MOORED AT SAINT THOMAS

CHRISTIAN THE FIFTH of Denmark named this city Charlotte Amalia, in honor of his beloved wife, Queen Charlotte Amalia. This gem-like city was the seat of government during Denmark's occupation. A stately lighthouse on Buck Island informs us we are about to enter the landlocked harbor. Nestled at the foot of four hills amid gorgeous palms, Charlotte Amalia, now called Saint Thomas, glistens in the tropical sunlight.

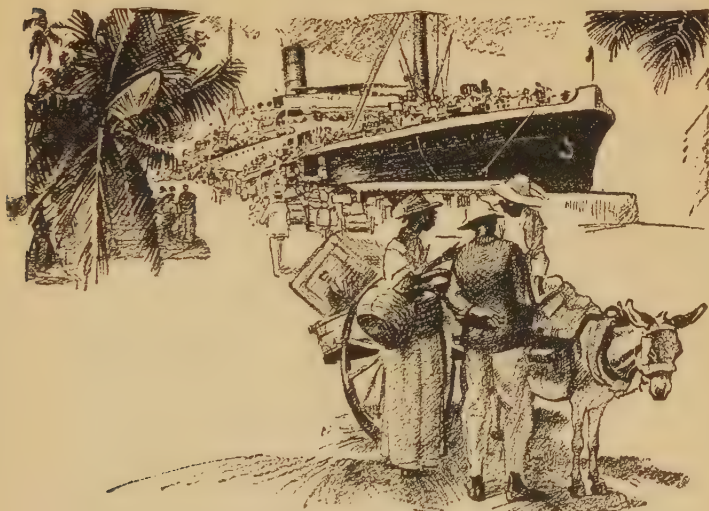
This city, the jewel of the West Indies, has borrowed much of its quaintness from Europe. From the deck of our steamer we recognize the blending of the Old and New Worlds. Dame Nature has added refreshing touches in many places. The architecture of the buildings resembles that in Denmark; the coloring, bright and spotless, compares with that of Venice; and the streets, some parallel, others narrow, winding, and crooked, correspond to those in some European cities.

Mariners now pronounce the harbor a peerless haven. Sanitary conditions improved after the engineers excavated a channel from the mainland to Hassel Island. Scientists call this undertaking a modern triumph in engineering. Before the completion of this channel the stagnant waters caused diseases. Typhoid and other kindred diseases disappeared soon after the water began to circulate in the harbor.

While the seamen prepare to dock our vessel we



study the sights on shore. A dry dock accommodates large vessels which come from other West Indian ports. The fortifications of the English and Dutch loom up plainly. The captain points out Cowell's Battery, which the English constructed in 1801. The people of



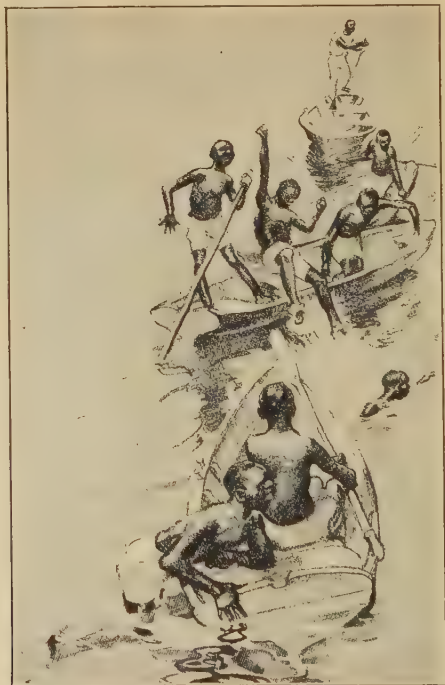
*From a drawing by O. F. Howard for "Scribner's Magazine."*

THE LANDING AT SAINT THOMAS.

the city watch this old edifice, used now as a signal-station. The colored flags, suspended from wires, give information about approaching and departing ships.

Have you read about the diving boys at Saint Thomas? A group of them row out to our vessel and beckon to us to throw coins into the water. We throw several coins and the boys dive into the water. Soon they appear above the surface clutching the coins in their fists.

Surprises await us as we set foot on these shores. We expect to find Danish people, for Denmark possessed these islands for more than a century. Instead



*From a drawing by O. F. Howard for © "Scribner's Magazine."*

THE BOYS OF SAINT THOMAS DIVING FOR PENNIES  
THROWN BY TOURISTS

of Danes, the West Indian negro greets us everywhere. Of 10,000 people on this island, 8,000 live in Saint Thomas. The best authorities inform us that 90 per cent of these are colored.

At the wharf we amuse ourselves watching colored

women loading a ship with coal. Carrying the baskets filled with coal on their heads they trudge up the gang-plank with apparent ease. Everywhere in the city we find the native colored women carrying things on their heads. Small girls have baskets that fit their heads. The husbands and fathers of these claim Nature did not give them the proper strength in their necks to carry and balance such burdens.

We expect to hear foreign languages spoken, especially Danish. We soon learn that most of the natives speak English. Nearness to our country, our commercial relations with the people, and the prevalence of American and English tradesmen probably influenced the inhabitants to learn and use our language. The names of a few streets and some buildings still retain Danish names. When Denmark possessed these islands the government printed all reports and instructions in both Danish and English.

For a long time Denmark has adhered to the Lutheran Church. Naturally Lutheran ministers and missionaries came to these islands and converted the natives to their faith. To-day we find the Memorial Church of Moravian Brethren powerful and bearing fruit. In Saint Thomas the Catholics and the Protestants have erected massive houses of worship. It only requires a brief sojourn in this tropical city to notice the uplifting influence of the priests, ministers, and missionaries. To these zealous religious workers goes the credit for the unusual moral and spiritual conditions found throughout Saint Thomas.

The Danish Government urged the organization of schools. When the Moravian missionaries came to the

island they gave instruction in trades. A few estate-owners instructed their negroes in the work on the plantations. The beginning of our ownership was marked by the erection of schools. A child to-day may procure as good an education as anywhere in our own country. Though we find no universities, yet many high-school graduates enter colleges and other higher institutions of learning at San Juan, Havana, or the United States.

Saint Thomas, like Rome, lies on noble hills; the former on four, and the latter, as you will recall, on seven hills. Above the palm-fringed shore one long street, "Main Street," practically parallels the sea-front. This avenue is to Saint Thomas as Princes Street is to Edinburgh, or Fifth Avenue to New York. On both sides of this street are quaint stores, of brick and stone, busy shops, low-built warehouses, modern offices, and a few banks.

Other narrow, winding, and crooked streets cross the principal street at right, acute, and oblique angles. Since Saint Thomas reposes on the sides of four hills, some of the steep and almost impassable streets tax our endurance. Many streets consist of a series of continuous steps, and have cement gutters to conduct the rain-water to the sea.

Visitors proclaim Saint Thomas a superb city. The builders of the past, masters at their craft, added enough of the old-world touches to give the entire city quaintness and charm. Most of the houses are light-colored, with shutters and scarlet-colored or gray-tiled roofs. In the attractive lawns or gardens grow flowers, palms, and bougainvillea-trees. Often

we pause at the grilled-iron gateways to paint a mental picture of the flowers, shrubs, and trees.

Throughout the city we note the construction of the



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SAINT THOMAS, VIRGIN ISLANDS.

Most of the streets of Saint Thomas are very steep and consist of flights of stone steps like this one.

homes. Built low and strong, the structures can withstand severe storms. This section lies within the well-known hurricane belt. Since the year 1713 more than a dozen destructive hurricanes have swept this area,



causing untold damage to life and property. Perhaps your parents recall reading about the terrible hurricane of October 9, 1916, which almost destroyed the entire city.

The natives feel earthquakes in this region as do our friends in many places of America. These tremors do not cause much damage to property, as the natives construct their homes both earthquake and hurricane-proof. Since the tremors approach from the south, the quakes may originate in South America. Regardless of the earthquakes and hurricanes, we find life to be ideal in this "Garden of the Antilles."

Above this picturesque city towers Delanois Hill. This name comes from a prominent settler in the early days of occupation. Here almost in seclusion lived General Santa Anna, the celebrated Mexican general, who, like Napoleon, was banished from his native land. We meet an aged negro in Emancipation Park near the statue of the Danish king, Christian IX. He remembers the exiled Mexican soldier hobbling about the streets of Saint Thomas on his wooden leg.

At Government Hill we find the former residence of the Danish governors. The massive chandeliers, old mahogany furniture, and framed paintings attract our attention. Notable social functions used to take place in these chambers. Before leaving this lofty eminence let us tarry at Blackbeard's Castle. It received its name from the well-known sea-bandit John Teach, surnamed Blackbeard, because his coal-black beard covered his face. Writers of history cannot find any information proving this pirate lived here, but an examination of the mansion gives us an idea of the homes of that early period.



The inhabitants of Saint Thomas are kind, friendly, and hospitable. There seems to be nothing too good for a friend. Old and young delight in presenting bouquets of flowers to their departing guests, an expression of regard and esteem. In travelling through Denmark, Belgium, and Germany we recall this same custom.

Perhaps no city in the world enjoys its holidays as does Saint Thomas. Christmas and New Year's are memorable days. Marching bands, singers chanting carols, and musicians playing the flute, guitar, or a "scratchy-scratch" lend an air of enchantment. The "scratchy-scratch" consists of a long piece of calabash with strings like a banjo. As the player draws the bow across the strings "sweet, mellow, and queer" tones fill the air. Only at times this music blends with other instruments. Evidently the musical instrument has not been misnamed—a scratchy-scratch.

## QUESTIONS AND PROJECTS

1. Explain the origin of the name *Charlotte Amalia*.
2. Why do you suppose this city is "The Jewel of the West Indies"?
3. Assume you are standing on the deck of a palatial liner and viewing Saint Thomas for the first time. Write a letter to a friend describing the landscape, dwellings, and people.
4. Make a poster illustrating a typical scene in this city.
5. Though Denmark owned this section for decades, yet the prevailing language is English. Explain.
6. Consult your newspapers or magazines for the names of the steamship companies whose boats stop at Saint Thomas. Appoint a member of your class to write to the steamship line for its literature about Saint Thomas.
7. Ask one of the boys of your class to construct a bulletin-board. In studying about the Virgin Islands, place on

this board pictures, photographs, advertisements, clippings from papers and magazines, and any other material that will be of interest to the class.

8. Consult the encyclopædia for information about General Santa Anna.

9. Give oral themes on the following:

(a) Christmas at Saint Thomas.

(b) The Garden of the Antilles.

(c) Why I prefer to live in my own city or town.

10. Procure a set of pictures that illustrates this chapter. Prepare an address to accompany each picture, assuming they are to be thrown on a screen by a stereopticon.

## CHAPTER XXI

### AN EXCURSION THROUGH SAINT THOMAS

AN excursion through the island of Saint Thomas acquaints us with the scenery, life of the people, and the flora and fauna. Our government has constructed a few miles of good highways, yet to see the island, we must follow trails and bridle-paths. It will not be difficult to see most of the island, for it is small, measuring thirteen miles in length, by three in width. We travel from one end of the island to the other without any fears. Animals and poisonous snakes do not attack us, for we find none here.

Our itinerary takes us to a magnificent estate called *Ma Follie* which, in English, means "My Folly." The natives named it after the owner failed to establish agriculture on this plantation. To-day a luxuriant growth of vegetation carpets the estate above which loom many kinds of palms.

What is that monument or shaft we see in the distance? Around its base grow a dense foliage and slender palms that act like guarding sentinels. A group of Brazilian astronomers gathered here in 1882 to observe the transit of Venus. Consequently the stone obelisk was erected at this lofty summit to remind visitors of the scientists' sojourn in Saint Thomas.

The panorama from this point surpasses any in the West Indies. In the blue distance the heavenly dome forms a perfect circle on the horizon. Now and then it appears broken by tiny green-covered islands. The

unique view is made more impressive by the ever-changing colors of the landscape where the tropical shrubs nod their heads in the gentle sea-breezes.

Where the slopes merge with the breakers the city of Saint Thomas rises about the crater-like harbor.



*From a drawing by L. L. Balcom for "Scribner's Magazine."*

AN OLD SPANISH IRON-WORK GATE IN A MARKET WALL OF SAINT THOMAS.

Smoke from the glistening vessels drifts in spirals and disappears in the blue haze. Across the broad expanse of blue water the verdant slopes of Saint Croix sparkle in the sunlight. To the west projects the shore-line of Porto Rico, about forty miles away. The azure sky and the indigo color of the water remind us of the noble

mountains and placid lakes of Switzerland, bathed in that incomparable blueness. The cream-colored beaches of numberless green islands, immersed in sunshine, are beyond description.

From the Ma Follie section a winding road threads its way eastward to Magens Bay. Numerous slender animals, like our minks or weasels, dash across the road and disappear in the thicket. These are the mon-goose, imported from the East Indies, to kill rodents. The natives consider them a pest, for they menace birds and smaller animals. The rapid decrease of bird-life may be traced to these animals.

Near Magens Bay we see a mother deer and two fawns. How did these animals come to Saint Thomas? The United States, according to geologists, was connected to South America by a narrow strip of land. This sounds quite true, for these islands are probably the summits of a submerged range. Deer may have found their way to this island from either mainland. Also European settlers imported a few fallow-deer into Saint Thomas.

Have you heard of the Heye Foundation of New York City? Indians inhabited this island long before Columbus anchored his vessels in the harbor. This Foundation sent an expedition to Saint Thomas to investigate traces of these early people. At Magens Bay the Foundation came across many evidences of the Indians. From the many relics found beneath the topsoil the investigators constructed a life story or history of these Indians. Perhaps some of you have examined these relics in the museum of the Heye Foundation in New York City.

Two classes of people inhabit the rural sections—the Cha-chas and the negroes. The former originally came from the Dutch and French Leeward Islands, the latter are descendants of slaves imported from Africa. The Cha-chas live by themselves and do not associate to any extent with the colored people.

Probably no native huts in the West Indies excel those in Saint Thomas for originality or usefulness. The framework consists of either bamboo or the trunks of young slender trees. Some of the huts are plastered both outside and inside with a kind of cement; others have the outside covered with the bark from the palm-tree. The pyramid-shaped roofs are covered with thatch or tin. Every hut has one door, but seldom any windows. Hammocks, charcoal-stoves, and wooden boxes make up the few belongings. The more prosperous natives have small Singer sewing-machines, radios, and victrolas.

On our way to Water Bay, we observe both bird and animal life. Groups of wild pigeons, resembling those we saw on the moorlands in Scotland, rise furiously from a thick cover, and fly with the speed of an airplane to a safe retreat in the uninhabited areas. Sometimes we mistake the wood-dove for the pigeons. In ambling along we do not see our northern bird friends. The birds, gay in their dress, lack the sweet-sounding notes of our own feathered friends. We observe, by a freshly made hole, an agouti sitting on his haunches, eating a stalk of sugar-cane. These animals attain a length of about two feet. Near by they resemble an enlarged guinea-pig and farther away gray squirrels. Along the ponds and lagoons we note the habitat of many varieties of gulls and wild ducks.



Countless millions of fish find good feeding-grounds in the waters between Saint Thomas and Saint John. The pelicans employ unusual methods in fishing. Whenever a diving bird procures a fish, the bandit pelican rushes after him, and usually succeeds in robbing the bird of his prey. The pelican depends upon other birds to do his fishing. This robber is not lazy and indolent, but Nature did not equip him to be a good fisherman.

The natives have unique methods in fishing. They would starve if they depended upon a rod and line, so they use nets. The net, made of cord, has weights in the bottom. When the fisherman detects a school of fish, he throws this net which opens like a parachute as he pulls it through the water. The alert pelicans fly about to steal their share of the catch.

A desert like those in Southern California exists on this island. South of Water Bay stretches an undulating region, shut off by high hills. The moist winds from the sea cannot deposit rain. Because of the lack of rainfall this section remains arid and dry. Despite the dryness desert grasses and bushes grow in scattered places.

A few native villages, with thatched roofs and sides, skirt the edges of the desert lands. The natives procure their food from other parts of the island. Some transport vegetables and fodder from Thatch Cay in old-fashioned dugout canoes. Others pasture their livestock on farms adjacent to the dry zone.

Did you ever hear of a ship's graveyard? This so-called "cemetery" lies at Krum Bay, which we shall visit. In the early days sailors brought vessels into the harbor at Saint Thomas for repairs. Some dishonest

employees of marine insurance companies falsely condemned them. They towed the supposedly disabled vessels to Krum Bay, dismantled them, and then sold their parts. At this bay we see an unusual museum. Old-fashioned nautical instruments, relics from obsolete ships, telescopes, compasses, and quaint-looking mastheads attract our attention.

In travelling through Saint Thomas we note the many industries. The production of sugar and bay rum, cattle-raising, and fruit-raising are important. We observe numerous ruins of sugar-mills. Near Windberg we see turpentine-forests. These ugly-looking trees contain too much resin for the production of turpentine. Because of the resin the trees make a poor grade of lumber.

We journey to Botany Bay which lies at the western end of Saint Thomas. On clear days we look across the strait and see the green slopes of Porto Rico. The water, dotted with numberless cays, makes navigation difficult. Here negroes embarked for Porto Rico in the days of slavery. By using their canoes and dugouts they paddled from cay to cay and escaped to Porto Rico.

We come to the end of a delightful journey through this tropical paradise. Since our government purchased Saint Thomas, the people have progressed rapidly. Scientific methods in raising produce and in manufacturing have supplanted the old and the more crude. The native villages have erected schools, missions, and churches, which have aided their progress.

## QUESTIONS AND PROJECTS

1. In your scrap-book draw a map of Saint Thomas showing the principal places mentioned in this chapter.

2. Consult any reference books that give the area of Saint Thomas. Compare it with a section of our own country with which you are familiar.

3. Describe the view from Ma Follie.

4. Why did astronomers come to this section?

5. Bring to class pictures of all animals and birds mentioned by the author.

6. Prepare a poster on "The Early Inhabitants of Saint Thomas."

7. Assume you are the manager of a tourist agency in Saint Thomas. Write an advertisement to be inserted in your paper in which you seek the services of a competent guide.

8. Write a letter of application for the position, paying strict attention to neatness, spelling, punctuation, and correct English.

9. Consult your geography text and encyclopædia and find out more about the bay-rum industry.

10. Make a list of ten new words, found in this chapter, using them in complete sentences.

## CHAPTER XXII

### AN ENCHANTED ISLE

PICTURESQUE Saint John, an emerald island, another of the Virgin Islands, projects above a deep-blue sea. Columbus sighted this island on his second voyage. The Carib Indians peopled it at that time. Traces of these Indians come to light from time to time. This isle came under the control of Saint Thomas in 1716. It remained so, until the Stars and Stripes displaced the Dannebrog 199 years later.

Of the many islands in the West Indies none is more interesting than "Little Saint John." From the shores to the tops of the conical-shaped hills where the sea-breezes temper the climate, the island teems with interest. The traveller is impressed by the natural grandeur of the islet, and the many quaint inscriptions found on time-worn rocks, the writings of an early people.

Where is this island of Saint John? Can you locate it on your maps? It lies between four and five miles almost due east of Saint Thomas. Cays stud the narrow strait that separates these two islands. The rocky reefs make it unsafe for large vessels to ply these waters. For that reason few boats anchor at Saint John. Once a month a small boat comes from Cuba. Every two weeks another craft brings mail to the island. People do not depend upon these boats with which to leave the island. Instead, they use their own launches or vessels to reach neighboring ports.

At Saint Thomas we charter a small motor-boat and in a few hours arrive at Cruz Bay, Saint John. Around the edges of the semicircular harbor grow a fringe of palm-trees. Through these we discern one-storied houses whose light sides and red roofs glisten in the sunlight. At the dock swarms of colored people greet us. We learn that the majority of the inhabitants consists of descendants of slaves.

Saint John, the minor one of the Virgin Islands, is ten miles long, five in breadth, and contains twenty square miles. Camel and Bordeaux Mountains rise to a height of about 1,300 feet, the highest points in the island. Unlike Saint Thomas and other islands in the West Indies, Saint John has a good supply of water. Throughout the island we notice many springs and streams which supply the inhabitants with water.

During our horseback journey through the hilly island, we notice the small number of natives. The few native settlements seem like outposts of civilization. In these towns we find the natives contented and happy. Sometimes the men accept seafaring positions. Life at sea is not comparable with that in Saint John. They soon return home where they have opportunities to work and provide the necessities of life for their families.

Can you guess what the thousand natives of Saint John do for a living? The natives find profitable and varied employment in Saint John. Cattle-raising, bay-rum industry, boat-building, fishing, caring for lime-groves, making charcoal, constructing baskets, and raising many vegetables and fruits furnish employment for the inhabitants.

You have heard much about bay rum and its uses. In a tonsorial parlor or drug-store, you may have seen bottles on the shelves with the words "bay rum." We find the principal bay-tree groves or orchards in Saint John. This tree refuses to grow on most islands in the West Indies under the same conditions. The bay-trees will not grow on certain plantations in Saint John.

While the Danes controlled the island they neglected this important industry. They paid little attention to the development of the trees. The Danish planters depended upon the winds and birds to scatter or transport the seeds. When the Americans took control, our scientists made a study of this industry. From the planting of new trees to the shipment of bay rum, our American planters use the best scientific methods.

The bay-tree industry employs several hundred people. Boys and nimble-footed youths climb the trees and pick the leaves or the tender branches containing leaves, throwing them on the ground. Men and women and clumsy-footed young people gather the leaves in bags. When the bags are full, they weigh sixty or seventy pounds.

One would suppose the breaking off of young branches would injure the trees. The planters claim this method helps the growth and development of the trees. In a short time another branch grows from the stub of the severed member. The Danes usually picked the leaves every four months. Since the Americans have taken control, they wait nearly a year between "harvests."

To remove the bay-oil from the leaves, the planters use a method called distillation. This process takes



place in Saint Thomas where they have labor and facilities. The sweet-smelling liquid is sold by perfumers over all the world.

Every year tourists, among whom are historians, botanists, and sportsmen, come to Congo Cay. This boulder-like islet lies at the northwestern end of Saint John on the shores of the Atlantic. We note the absence of vegetable and animal life. The cay is covered with boulders and eroded by the winds and waves, which adds considerably to the barrenness of the desolate islet. Numerous fishermen cast their lines in the surf. The Indians proclaimed this the best fishing-ground within their reach.

Sitting upon these gray rocks, we see large and small holes made by the early Indians. They probably pounded salt into their fish, making the cavities in the rocks. The various signs, pictures, and characters, written on the rocks, cause us to think of the past. Historians call these writings of the Indians "petroglyphs." This word seems difficult, but it is easy after you know Greek. *Petro* means *rock* and *glyph* *sign*.

These "glyphs" were understood by the Indians, and to them each sign meant something. We cannot interpret them any more than the Indians could the inscriptions on our historic monuments. Some think the inscriptions meant a place of worshipping or feasting; many believe they contain a story of their tribe; and others maintain these inscribed boulders mark the spot where the Indians assembled to decide on war.

Before leaving the picturesque island of Saint John, let us take a horseback ride to the summit of Camel Mountain. From this point an unusual view presents

itself. The irregular shore-line, fringed with palms, appears like a broken band of silver. Bleak white-caps dance and play about the rocky cays, whose heads bob up and down like seals. In the hazy distance dim outlines of Saint Thomas and Saint Croix appear above the blue horizon. The green hills of Saint John blend perfectly with the deep-blue water of the neighboring sea. No wonder this is called an enchanted isle!

### QUESTIONS AND PROJECTS

1. Define: picturesque, emerald, Dannebrog, studded, Danes, botany, petroglyphs, enchanted, historian, charcoal.

2. Use each of the words in correct sentences.

3. Draw a map of Saint John, and on it locate all the places mentioned in this chapter.

4. Prepare an outline for a long theme on the Indians that once inhabited the section where you now live. Some of the points you should bring out are: Names, tribes, how they looked, dress, ceremonies, education, religion, wigwams, food, money, implements, and their sports.

5. Would you like to live in Saint John? Give reasons for your answer.

6. Draw a map of this section, sketching the route taken by the author.

7. From your study of Saint John, what are the opportunities offered to business people?

8. Why does the bay-tree refuse to grow in other regions of the world?

9. Give an oral composition before your class on the following: "Through Picturesque Saint John."

10. Why are the petroglyphs so interesting to us?

## CHAPTER XXIII

### THE ISLE OF THE CROSS

As we proceed on our trip, we shall stop at Saint Croix, called often the *Isle of the Cross*. In French we learn that *croix* means *cross*. Since we have viewed its silvery shores from Saint Thomas and Saint John, we feel somewhat acquainted with this "Pearl of the Caribbean."

Saint Croix lies about forty miles south of Saint John. The Virgin Islands form an isosceles triangle with our present island at the apex. Saint Croix extends twenty-two miles in length and six in width. This gem contains three or four times more area than the other two islands.

Records tell us that the gallant navigator, Christopher Columbus, discovered Saint Croix in 1493. Nearly a century passed before another white man came to these shores. Historians inform us Sir Walter Raleigh of England has the honor of being that one. Both of these Europeans came in contact with a tribe of Indians whose characteristics and customs resembled those of the other islands of the Virgin group.

The early history of this island reveals a struggle for supremacy which included war and conquest. The Dutch, English, and Spanish fought valiantly at different periods for possession. When France wanted money to send an army into Poland, she sold her interests in Saint Croix to the Danes, who established

law and order. Under Denmark this island developed to such a point that commercial people called it the "Richest of the Lesser Antilles." In 1917 the American Government, as we learned before, took over this important island.

As we travel through this newly acquired possession we come in contact with people of many classes. The population numbers 20,000, of which 95 per cent are colored. The remaining 5 per cent includes Americans and foreigners from many countries.

In the north rise high hills which the natives call mountains. When the early settlers arrived, they found forests growing on the higher elevations, but the French burned them afterward. South of the mountainous section we identify a coastal plain sloping gradually to the sea. Along these shores we recognize bays and lagoons. Not far from these lies a barren area called a desert.

Like the other islands of this group, hurricanes, earthquakes, and tidal waves visit Saint Croix. The hurricanes usually come in August, September, and October; the other disturbances of Nature follow no particular schedule. The inhabitants do not dread these as much as some people fear windstorms and earthquakes in America.

Most American girls and boys are conversant with the life of Alexander Hamilton, nicknamed "Alexander the Great." You will remember this patriot lost his life in a duel with Aaron Burr. Perhaps some of you have visited the duelling-spot in Weehawken, N. J. Did you know that Alexander Hamilton was born in the West Indies? While he worked at Fredericksted an

unusual hurricane wrought considerable damage in this city. He wrote a scholarly account of this storm to his father. In this letter the father's friends saw signs of future greatness. These friends urged the father to send young Alexander to school in America. Let us peruse the letter that the youthful Alexander penned to his father:

DEAR FATHER

SAINT CROIX, September 6, 1772

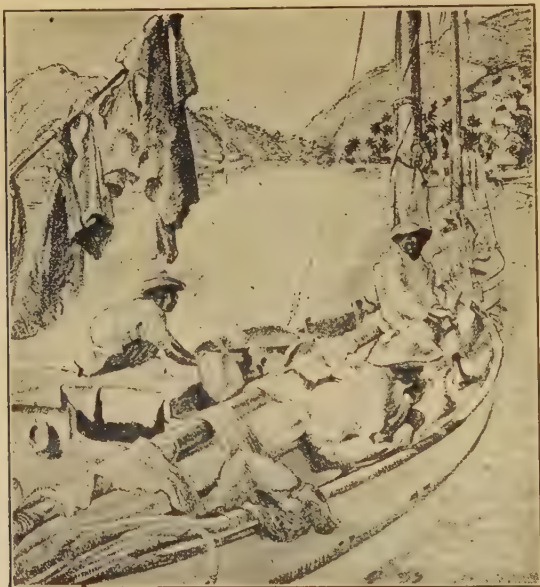
I take up my pen, just to give you an imperfect account of one of the most dreadful hurricanes that memory or any records whatever can trace, which happened here on the 31st ultimo at night.

It began about dusk, at north, and raged very violently until ten o'clock. Then ensued a sudden and unexpected interval which lasted about an hour. Meanwhile the wind was shifting to the south, from whence it returned with redoubled fury and continued destruction—it's impossible for me to describe—or you to form any idea of it. It seemed as if a total dissolution of Nature was taking place. The roaring of the sea and wind—fiery meteors flying about in the air—the prodigious glare of almost perpetual lightning—the crash of falling houses—and the ear-piercing shrieks of the distressed were sufficient to strike astonishment into Angels. A great part of the buildings throughout the island are leveled to the ground—almost all the rest are very much shattered—several persons killed and numbers utterly ruined—whole families wandering about the streets, unknowing where to find a place of shelter—the sick exposed to the keenness of air and water—without a bed to lie upon—or a dry covering to their bodies—and our harbors entirely bare. In a word, misery, in its most hideous shapes, spread over the whole face of the country. A strong smell of gunpowder added somewhat to the terrors of the night; and it was observed that the rain was exceedingly salt. Indeed the water is so brackish and full of sulphur that there is hardly any drinking it.

Your affectionate son

ALEXANDER HAMILTON

As we sail into the harbor of Fredericksted, often called "Westend," black clouds cause the sea-captain to discharge the passengers quickly. During the hurricane months seafaring men do not care to anchor in



*From a drawing by O. F. Howard for "Scribner's Magazine."*

NATIVE BOATMEN OF SAINT CROIX OFF TO MEET AN  
INCOMING PASSENGER-SHIP.

the harbor. They prefer to sail on the high seas than to anchor in a harbor. Once our *U. S. S. Monongahela* during a hurricane was carried inland over a row of palm-trees. To float the stranded vessel the navy dug a canal from the harbor to the disabled ship.

Fredericksted, decked in robes of green and white, lies on the slopes of prominent hills. Projecting above



the leafy green, stand one and two-storied houses with red-tiled and tin roofs. The city appears built on one long street where mango, cocoanut, and palm trees give plenty of shade. The people delight to point out the site of Nicholas Cruger's establishment where Alexander Hamilton clerked.

No island in the West Indies possesses better roads. Modern macadamized roads connect the principal settlements and estates. These highways parallel and intersect each other, cutting the coastal plain into plantations where sugar is "king." If we look from an airplane these estates resemble a checker-board. Along the roads nod thousands of cocoanut-bearing palms and other tropical trees. The planters use these roads for both pleasure and commercial motor-vehicles. In the hilly sections we find farmers still using the two-wheeled ox-carts. No doubt the "good roads" have done much to develop the island and make it a desirable place in which to live.

Have you ever heard of oysters growing on trees? When Columbus anchored here, he found along the shores real oysters clinging to trees above water. Some of us may doubt the truthfulness of this statement. Along the shores grow mangrove-trees with their lower branches immersed in water at high tide. It is at this time that the oysters attach themselves to the branches. At low tide the oysters still cling to the twigs. This makes it appear that oysters really grow on trees.

Because of hurricanes and projecting rocks navigators hesitate about calling at Christiansted, the oldest settlement on the island. The reefs at the entrance of

the harbor make navigation quite dangerous. Small boats from neighboring ports enter the harbor, but steamship companies do not maintain a regular schedule to this port. Most tourists come to this city by automobile on the macadamized road from Fredericksted.

Christiansted lies back from the harbor on verdant slopes. The obsolete forts, Sophia Frederika and Luisa Augusta, played an important part in the early history of the city. Hurricanes, riots, and negro uprisings, during the Danish régime, interfered with the development of the settlement. Since the American occupation the city has developed into a modern commercial and residential city. To-day the people are proud of their schools, churches, shops, and homes.

After America acquired the Virgin Islands, a new spirit appeared. At first the people found it difficult to adopt new laws, customs, and ideals. Our teachers, missionaries, commercial and professional men transplanted in Saint Croix and its neighbors, Saint Thomas and Saint John, that invisible American spirit which promotes the welfare and prosperity of the people. To-day these three islands form a part of our national character and ideals. Long live our American possession—the Virgin Islands!

### QUESTIONS AND PROJECTS

1. Why is Saint Croix called "The Isle of the Cross"?
2. In your scrap-book draw a map of Saint Croix, showing its position as regards the other islands in this group.
3. How do you account for the large percentage of negroes in Saint Croix?
4. Define hurricane, cyclone, tornado.

5. Consult the encyclopædia for an explanation of the hurricanes that frequent this tropical region.

6. Select a member of your class to sketch orally the life of Alexander Hamilton.

7. One of your classmates has just arrived at Fredericksted for the purpose of visiting the historic and scenic places of Saint Croix. Send him a radiogram congratulating him upon his safe arrival and his opportunity to visit this "Paradise of the Lesser Antilles."

8. Perhaps some member of your class has visited the spot on the cliffs at Weehawken where the famous duel took place between Aaron Burr and Alexander Hamilton. If so, let him describe the historic place, the majestic Hudson at the foot of the cliffs, and the great city of New York in the distance.

9-10. Let the children prepare a class-booklet on their adventures in the Virgin Islands. The covers should be 10 inches long by 7 wide; the inside pages 6 x 9. Brown kraft paper, bogus-paper, or even ingrain wall-paper will make good covers; the inside pages may be of the same material, but essay-paper, drawing or typewriting paper are more satisfactory. Either a cord or brass fasteners can be used to fasten the booklet. The cover should be decorated with colored crayon, ink, or water-color. Compositions, pages from steamship folders, pictures from books and magazines, and photographs can be placed in the booklet in such a way as to make it interesting, attractive, and fascinating. After exhibiting the booklet to other classes in your building, give it to your principal or librarian to keep.

## CHAPTER XXIV

### THE PORT OF RICHES

PORTO Rico, the Port of Riches, formerly called Puerto Rico, meaning in Spanish the "rich port," is the smallest island of the Greater Antilles. This new territory lies 1,380 miles southeast of New York City, a distance equivalent to the length of either the Columbia or Colorado Rivers. Many people sail from New York, visit the island, and return in fifteen days.

After the surrender of Santiago de Cuba, America decided to take Porto Rico. Generals Miles, Wilson, and Brooke left Guantanamo Bay and sailed to Guánica, a few miles west of Ponce. Commodore Davis on the *Dixie*, with the assistance of the *Wasp* and *Annapolis*, attacked Ponce and forced the surrender of that city. A few days later the marines and soldiers began their march by three different routes toward San Juan. Soon our troops occupied Comao, Mayagüez, and Guayama. While part of our army encamped within twenty miles of San Juan and the rest approached Aibonito by way of the old military road, Spain and America signed a treaty of peace.

Most of the islands in the Caribbean resemble Porto Rico in many ways. Its luxuriant vegetation, tropical climate, fertile plains, and gorgeous scenery correspond to the Greater and Lesser Antilles. Modern sanitation, scientific agriculture, dense population, and the absence of forests make Porto Rico unlike the other



MAP OF PORTO RICO.

islands. The development of this island can be traced directly to those men and women of America who arrived after the Spanish-American War.

As far as we know, Christopher Columbus was the first white man to view these shores. Tradition informs us he discovered the island November 16, 1493, landing on the northwestern coast at a place now called Aguadilla. A marble cross, where he procured water for his ships, marks the historic landmark. In honor of *San Juan de Bautista*, Saint John the Baptist, Columbus named the island.

The peerless navigator did not tarry here, and neither did he return. A noble seaman, Juan Ponce de Leon, who accompanied Columbus on this trip, liked the island so much he returned fifteen years later to found a settlement. This intrepid explorer called the island "Porto Rico," because of its great wealth and richness.

Ponce de Leon established his headquarters at Puerto de Viejo, then called Caparra. At first he had unfriendly relations with the copper-colored savages, the Caribs, but soon he made peace with them. Ponce de Leon did not care especially for his location at Caparra, so he removed to the present site of San Juan and established a settlement. This event took place more than one hundred years before the Pilgrims embarked for our American shores.

While developing this settlement at San Juan, Ponce de Leon heard much about the "Fountain of Perpetual Youth." Since he was becoming old, he wanted to bathe in the "fountain" and become young. During the search for the spring he discovered Florida. Later,



in Havana, Cuba, this explorer met his death from an arrow shot by an unfriendly Indian.

During de Leon's sojourn at San Juan, he realized the importance of fortifications. At the entrance of the harbor he began erecting the walls of a fort. While



MORRO CASTLE AND THE ENTRANCE TO SAN JUAN HARBOR.

these remained uncompleted for seventy-five years, yet the work under this Spaniard marked the beginning of the world-famous Morro Castle.

From the arrival of the whites to the defeat of the Spanish in 1898, Porto Rico has experienced many conflicts. After Ponce de Leon's conquest of the Indians, French privateers failed in their attempts to conquer the people. Then came the English under Sir Francis Drake, in 1597, and twenty-five years later the Dutch. These invaders failed, and the Spanish held the island for over 400 years, or until their surrender to Admiral Sampson on sea and General Miles on land.

Then the Port of Riches became our territory December 10, 1898.

Somebody has said: "Porto Rico is as square as a brick." Its length is 100 miles; width 40 miles; and it contains about 3,600 square miles, which makes it about the size of the State of Rhode Island. Of the 1,500,000 people, more than 80 per cent live in the country. As we travel through the island we shall note the growing of sugar, coffee, tobacco, and citrus fruits.

Travellers agree that Porto Rico is a paradise. The many historic places, scenery that surpasses other Caribbean lands, quaint customs, and congenial people make Porto Rico an attractive place. The blending of the Old and New World traditions and customs appeals to us.

Since Porto Rico lies south of the tropic of Cancer, we think the climate is hot, sultry, and quite depressing. In the summer the temperature rarely exceeds 75 degrees Fahrenheit; in the winter the thermometer seldom goes below 50 degrees Fahrenheit. Though situated a few degrees within the tropics, this gem possesses a favorable climate. We find no extremes of heat and cold as we do in our northern States. In summer the trade-winds temper the climatic conditions. Were it not for the changes in coloring of the foliage, we should not think of our northern seasons. The leaves of certain trees, in the autumn, imitate their northern cousins by falling, which reminds us of winter which never appears. In February or March these same trees remind us of springtime by sending forth buds and shoots. Regardless of this perpetual summer we northern people miss the magic wand of Jack Frost and the many pleasures he brings to us each winter.

After America procured the island from Spain in 1898, we organized the government similar to our own. Our President appoints a governor, auditor, attorney-general, commissioner of education, and justices of the supreme court. The Governor, with the approval of the Porto Rican Senate, selects the heads of the other departments. The people have a voice in their own government by electing a representative to Congress at Washington and their legislature, which corresponds to our Senate and House of Representatives.

After our country took over Porto Rico, a great change took place in education. Formerly the privileged classes could procure an education; now all young people have an opportunity to pursue studies that will best fit them for life. American teachers responded to the call of our government and admirably assisted in organizing schools in agriculture, academic studies, and vocational training. To-day America feels proud of the College of Agriculture at Mayagüez, the Normal School at Rio Piedras, and the far-famed University of Porto Rico. Throughout the island scores of elementary and secondary schools prepare thousands of young men and women for these higher institutions of learning.

### QUESTIONS AND PROJECTS

1. Draw a map of Porto Rico, showing the points of interest described by the author.
2. Why is this chapter called the Port of Riches?
3. Consult an encyclopædia for information about the discovery and exploration of Porto Rico.
4. In a history text learn all you can about Ponce de Leon and Florida.
5. Make a list of words in this chapter new to you and add them to your vocabulary.

6. Show how the Porto Ricans have a voice in their government.

7. Imagine yourself a sailor who journeyed with Ponce de Leon to San Juan. Write a letter to a friend describing your experiences.

8. How would you direct a tourist from your home town or city to San Juan?

9. What five things can you find out about a word in the dictionary? From this chapter make a list of ten words. Try to find out everything you can about each word chosen.

10. Prepare oral compositions on the following topics:

(a) 'The Port of Riches.

(b) Porto Rico has an ideal climate.

(c) Why I should like to spend my vacation in Porto Rico.

## CHAPTER XXV

### SIGHT-SEEING IN SAN JUAN

HAVING acquainted ourselves with a few facts concerning Porto Rico, we shall now embark for this territory. As we sail into the land-locked harbor at San Juan we cast our eyes toward the aged ivy-covered walls of the world-famed Morro Castle. On our right lies basking in the morning sunlight the island-fort of Canuelo. If the walls of these ancient landmarks could speak, they would thrill us with tales of heroism and adventure.

Above the placid waters of the harbor rises the city amid rows and rows of gorgeous palms. Between the branches of the waving trees we catch a glimpse of light-colored buildings with red roofs. About the old fortress of San Cristobal repose clusters of low houses. This protecting mass of masonry with its honey-combed cells has acted as a sentinel for over four centuries.

Probably no city in the West Indies boasts of so many Old and New World blendings. The projecting balconies, arched corridors, and interior patios remind us of Spain. The narrow paved streets make us think of those cities in northern Africa where Spain ruled for so many years. Throughout the city stand modern structures whose architecture compares favorably with ours in America.

In the Colon Plaza, by which pass daily the tides of life, stands a weather-beaten and time-worn column

supporting the figure of Christopher Columbus. The sculptor gave the discoverer of America an expression of determination. Silently but firmly Columbus grips the banner of Ferdinand and Isabella. This monument



STATUE OF COLUMBUS, SAN JUAN.

was not placed here to remind us of his discoveries but as a tribute from a people who always admired the man, the discoverer, and the navigator.

In Spain most cities and towns have plazas. Wherever the Spanish flag has waved, we find them. Spaniards erect the plazas for the social enjoyment of both young and old. The Plaza Principal of San Juan consists of a large rectangular park, paved with stone and concrete. The people assemble in it to listen to music,



to meet friends, to purchase articles from the adjacent shops, or to take part in the promenade.

From the Principal Plaza we stroll to the noted San José Church, a massive light-colored edifice. In front of this gleaming structure stands in bronze a life-sized figure of San Juan's first governor—Ponce de Leon. The artists made it from British cannon, captured in the attack of 1797. For nearly 300 years the ashes of Ponce de Leon reposed in this old church.

At every angle we dodge swift-moving auto busses, dashing madly along the streets. For the time being, the numbers of busses and their noisy horns remind us of New York. Often we see automobiles bearing license plates from different states in our country.

As we move along the streets we see many kinds and types of people. Neatly dressed men and women greet us. Shopkeepers in white cotton garments look clean and immaculate. Occasionally we meet colored people, Spaniards and foreigners. Girls with bobbed hair and boys with long trousers resemble those in our American cities.

The Casa Blanca, or White House, attracts our attention. The arched windows, barred doors, crumbling walls, high terraces, and genuine Spanish architecture give a partial idea of the labors of those who toiled centuries ago. The early Caribs had a part, under the supervision of the Spaniards, in the construction of this landmark. Ponce de Leon, the first governor, occupied this palace during his term of office. The grounds studded with tropical trees, and the paths lined with flowering shrubs, make this section of the city interesting and beautiful.

The view from the White House surpasses any other in Porto Rico. A winding road leads amid luxuriant foliage to the old San Juan gate, the only one in the city wall that remains unrestored. Surrounded by noble palms, the Palace of Santa Catalina, the gov-



CASA BLANCA, THE GOVERNOR'S PALACE, AND THE OLD SEAWALL, SAN JUAN, PORTO RICO.

ernor's residence, looms up. Above the deep blue of the harbor, dotted with pleasure and commercial craft, stand the gray walls of historic Morro. Toward the south rise green hills which appear like windrows of newly mowed grass. These waving elevations of ground mount higher and higher until Mount Yunque, with its sloping sides, appears in the blue distance.

We make inquiries regarding the "Haunted Sentry Box," built on the masonry of San Cristobal. Tradi-

tion informs us the devil used to come to this lonely place to kidnap the sentry. Watchmen never found any traces of the missing sentry, only the odors of brimstone. Because of the disappearance of so many watchmen, the sentinels refused to patrol the walls.



THE HAUNTED SENTRY-BOX, SAN JUAN, PORTO RICO.

At last the authorities walled up the box and stationed a sentry at another outpost. Even to-day some say they have seen the evil spirit, heard the patter of his feet, and detected odors of burning sulphur. However that may be, the "Haunted Sentry Box" proves to be an interesting spot in the daytime.

A wall with fortifications once surrounded San Juan. Morro Castle composed a part of these early fortifications. The Spanish began the construction about 1539 and completed it forty-five years later. The massive

walls, parapets, chambers, dungeons, powder-rooms, lighthouse, obsolete guns, and moat remind us of the Morro Castles at Havana and Santiago de Cuba. When our fleet bombarded Morro in 1898 the Spanish gunners surrendered before our ships did much damage. As a fort the ancient Morro is quite obsolete; but as a landmark it stands out as one of the interesting places in the West Indies.

San Juan, though American, still retains much of her European charm. The general plan of the city and its Spanish architecture remind us of the Old World. The schools, hospitals, public buildings, churches, water-supply, sanitation, and electricity reveal the magic hand of America to render service and promote happiness.

At the conclusion of the Spanish-American War our government gave the people an opportunity to procure an education. As a result, illiteracy is disappearing from the country; the industries of San Juan forged ahead with leaps and bounds; and the natives learned to live together for the good of all.

Though San Juan has many modern buildings, yet the schoolhouses are among the best. Let us visit one of these schools to see the girls and boys at work and at play. In the playground the boys are practising baseball, getting ready for their games. The girls, too, have a basket-ball team. Some of the children with their teacher are working in the school-garden, learning to grow choice fruits and vegetables.

The principal takes us to the auditorium, where we listen to the school band and hear the pupils sing. In the shops we see the boys busy learning tinning, wood-

working, printing, plumbing, mechanical drawing, carpentry, and forging. The girls learn to cook, sew, embroider, make lace and hats, home-making, decorating, and caring for infants.

Nothing in the world is contributing so much to the



*Courtesy of the Porto Rican Steamship Company.*

PUBLIC SCHOOL, SAN JUAN, PORTO RICO.

health, happiness, and welfare of the people as education. San Juan feels proud of her schools, where her youth prepare for the many opportunities of American life.

### QUESTIONS AND PROJECTS

1. Name all the points of interest in San Juan.
2. Give the location of three different Morro Castles you have read about in this text.
3. Find a city in the United States having the same

population as San Juan. Compare the two cities as regards climate, rainfall, historic landmarks, and opportunities.

4. Out of papier maché construct a replica of a Spanish plaza in miniature.

5. Bring to class a list of ten questions on this chapter and be prepared to answer them.

6. In your scrap-book draw in color a picture of a Spanish flag.

7. Contrast the present education in San Juan with that offered by Spain before the war.

8. Debate the following topic: "Schools are a country's greatest asset."

9. Write a composition of one hundred words on "A Haunted House."

10. Assume you are a merchant in San Juan. Make a poster in color advertising your wares.



## CHAPTER XXVI

### VISTAS ALONG THE MILITARY ROAD

No road in America excels the military highway of Porto Rico. The early Spanish constructed this road from San Juan to Ponce, a distance of about eighty-four miles. Not excepting the zigzag roads of the Swiss or Italian Alps, this far-famed thoroughfare compares favorably with any macadamized turnpike in the world. To learn about this highway, to see the coastal and mountainous scenery, and to meet the natives, we shall walk from San Juan to Ponce.

The sun peeps over the horizon as we leave the broad portals of the Condado Vanderbilt Hotel at San Juan. For a mile or more we walk beneath wide porticos. Peering at the quaint shops, we watch vendors and shopkeepers preparing the wares. Often we read Spanish signs and names and admire Spanish architecture. After passing white bungalows nestled under clusters of palms we come to a broad, clean, and smooth road. This hard-surfaced highway impresses us as a friendly road. People of all walks of life salute us and politely bow. Drivers of Fords, trucks, and teams stop and offer us transportation.

Beside a curve in the road giant towers with their sparkling antennæ loom up. Perhaps some of you have tuned your sets in with this radio station. The sight of this makes us feel we are not far from home. Looking at our map, we notice this town is Puerta de

Fierra, a suburb of San Juan. Farther on appear long low-built warehouses and factories, used for storing and manufacturing tobacco. About these stand rows



MILITARY ROAD, PORTO RICO.

and rows of small attractive bungalows, the homes of the industrious workers.

We learn that San Juan lies on a small island. The San Antonio bridge connects the city with Miramar, a residential suburb. The olive-green of the palms and the red tints of the flowers contrast beautifully with the light-colored homes. We notice the many birds along the roadside and look vainly for our northern winged friends and their sweet familiar songs.

The military road threads its way through Santurce to Rio Piedras, a fashionable and modern suburb. At Borinquen Park, known as a centre for recreation, we pause to see both old and young enjoy themselves. Two features of this park are the luxuriant tropical vegetation and the gentle ocean-breezes.

Entering Rio Piedras, a city of probably 20,000 people, we note our pedometer has registered seven miles. God and man have done much to beautify this suburban city. The buildings of the Normal School and the University of Porto Rico attract annually students from far and near. At stated intervals the students gather at the plaza, listen to their band, sing their favorite songs, and take part in the promenade. Many visitors to this place walk through the government's gardens, favorably known throughout the West Indies.

A few miles south of Rio Piedras the dim outlines of the Sierra de Luquilla come into sight. Fields of pine-apples, grapefruit, oranges, and sugar-cane extend in all directions. Clumps of bamboo, with tops like plumes of an ostrich, add variety to the plains. The ever-present palms, graceful and rich, the scarlet-flowered flamboyant trees, and the handsome poinciana dispense richness to the scene. Approaching the foothills, we gaze upon acres and acres of guava-trees, planted especially to shade and protect the coffee-plants.

How interesting is every turn in the road! Tiny cabins on stilts dot the many slopes and plains. What is this single procession ahead of us? Barefooted negresses, garbed in various designs and colors, carry baskets of fruits and vegetables on their way to market.

Here comes a squeaky two-wheeled cart, which con-

tains yams, cocoanuts, and pineapples, drawn by a bull. A farmer carries milk to the city in cans strapped to the sides of a donkey. A husky negro, riding a bull with branching horns, attached to a home-made wagon containing charcoal, saunters along slowly.

Beside a group of fern-palms we watch this almost endless procession pass. As fast as the produce grows



From "Scribner's Magazine."

OLD SPANISH BRIDGE NEAR LA MUDA.

the busy natives transport it to market—year in and year out. A boy of about twelve years of age draws up with his pony. On each side of the animal hang basket-panniers filled with green cocoanuts. From this youthful vendor we purchase two cocoanuts for five cents. With his machete he opens them for us. The cocoanut-water from these unripe cocoanuts, called *Cocos de agua*, tastes sweet and cool.

In the vicinity of Caguas we stop at a peon village. The single-roomed huts, made of bamboo and thatched

with palm-leaves, offer a strong contrast to the cement or stucco homes in the cities. Without plans or designs the natives construct these huts after the fashion of those in other tropical lands.

A native family extends an invitation to stop with



NATIVE PORTO RICANS.

them in their thatched, stilted hut. Since these peons use charcoal in cooking, the black smoke and soot interfere with our breathing. A few soap or packing boxes constitute the bulk of the furniture. They have wooden knives, forks, spoons, and plates. Discarded gallon and five-gallon oil-cans they use instead of pails and jars. The occupants do not sleep in beds but in



low-swung hammocks, which they remove during the day to make more room. Quite often pigs and chickens spend considerable time with their owners in the cabins, especially at meal-time, but other times live underneath the hut. Situated beneath tree-ferns, banana-trees, and palms, these quaint huts, surrounded with many flowers, such as the rosy hibiscus and gardenias, present a genuine charm.

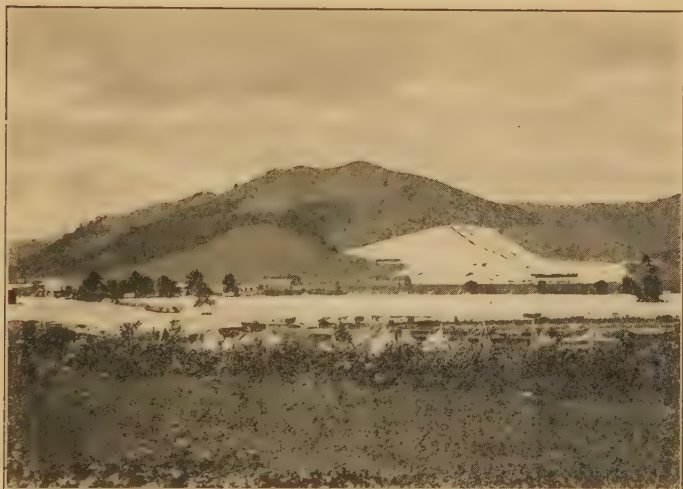
Leaving the picturesque peon colony, we journey along the military road to a pleasant knoll where we view the landscape. The verdant slopes of Sierra de Luquilla, with cloud-capped summits, appear a golden purple in the rays of the sun. The green of these mountains blends perfectly with the light-blue sky. About us rise green-covered hills whose vegetation becomes more varied. Amid these beautiful scenes the primitive military road continues in graceful curves, hair-pin turns, and serpentine loops.

Occasionally we tarry at historic taverns for refreshment. These one-storied structures of yellow plaster, trimmed with brick, stand at certain intervals. Long before the world dreamed of automobiles, these inns housed the weary couriers who bore messages across the island. Many of these country hotels boast of visits from several of the world's greatest people. Most of these landmarks serve now as gas-stations or refreshment-places.

At the top of the range an unusual view spreads out before our vision. The Caguas Valley, shaped like a huge amphitheatre, contains many points of interest. Like bands of silver the rivers Turabo and Caguas thread themselves among the slopes and cultivated



plains. The landscape, dotted with white blankets, makes a strong contrast to the emerald-like foliage. These white fields are tobacco-lands, covered with cheese-cloth, and among them are large drying-sheds.



*Courtesy of "American Gulf and West Indies News."*

TOBACCO FIELDS OF PORTO RICO.

The tobacco is grown under cheese-cloth nettings.

Like toy houses in the kindergarten the light-colored houses of Caguas appear dainty and mellow as their silver-tiled roofs gleam in the sunlight.

On our trip we pause at Caguas, the city we admired from the mountains. Caguas is typical of the interior cities of Porto Rico. The streets, dwellings, public buildings, plazas, schools, and churches reveal the attitude of the people toward life. Around the festive plaza stand modern shops, attractive dwellings, excel-

lent schools, and an imposing cathedral. From the school buildings float the Stars and Stripes, a familiar scene to us Americans.

Our journey from Caguas to Cayey cannot be for-



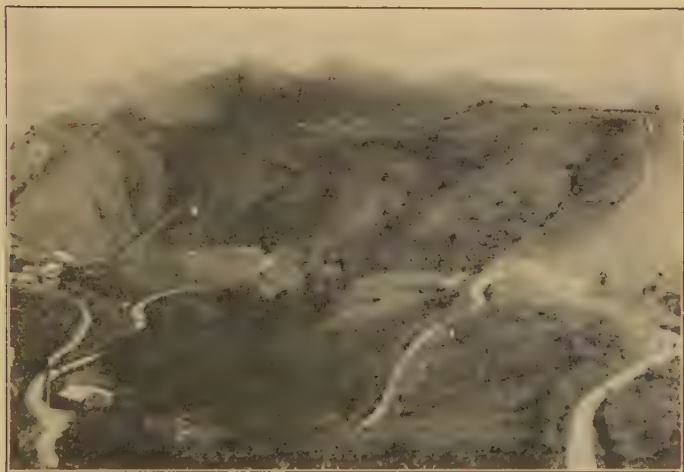
MARTIN PEÑA BRIDGE ON THE MILITARY ROAD, SANTURCE, PORTO RICO.

gotten. The smooth macadamized road threads itself over high mountains, through dense woods, by the side of steep cliffs, and among luxuriant tropical trees, flowers, and shrubs. This highway represents a monument dedicated to the triumphant engineers.

After passing over an arched bridge of Spanish design, we rest at the crest of the mountain overlooking another interior city—Cayey. This summit lies approximately 1,500 feet above sea level, which accounts for the drop in temperature. The gleaming red-tiled

roofs, the barracks still used for military purposes, and the towers, belonging to the naval radio station, appear in the distance.

The road from Cayey to Aibonito passes through a

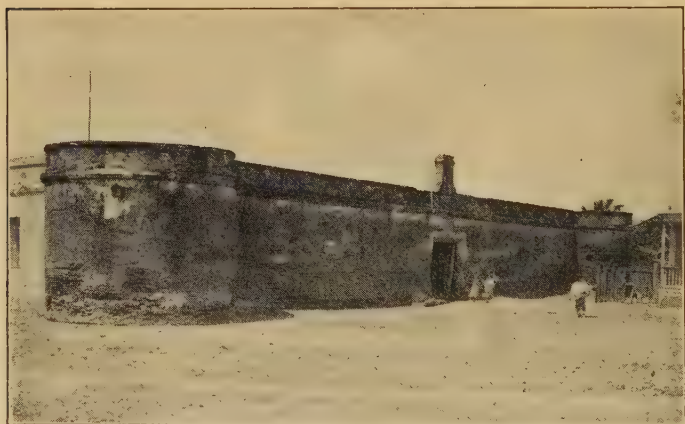


DOUBLE TURNS IN THE COMERIO-BARRANQUITAS ROAD,  
PORTO RICO.

coffee-raising and tobacco-growing district. Among high wooded hills, across roaring ravines, by the side of steep precipices, through dense clouds, that resemble our land-fogs, and close to overhanging cliffs, our military road winds and twists itself. Obviously this great highway is nothing less than an engineering triumph. At an altitude of 2,000 feet, the dwellings of Aibonito, basking in the sunlight, loom up like silver stars in the night.

At the summit of this mountain range the air feels

like that of spring or autumn in our northern States. Though cool, yet tree-ferns, tropical palms, and bamboo thrive as in the lower altitudes. Grass grows in this



THE OLD FORT AT PORT PONCE, PORTO RICO.

upland region, which the jibaros cut for the animals on the farm.

From Coamo we follow the road to Juana Diaz, the heart of the coffee-raising district. After a few miles of travel we sight fields of waving and tasselling sugarcane, tobacco growing under cheese-cloth, and coffee-trees. In the green pastures cattle graze, and in neighboring fields grow oranges, bananas, and cotton.

Journeying on the old military road from Juana Diaz to Ponce, we cross streams where peasant women pound their washing to remove the dirt. We arrive at Ponce, a city of 65,000, noted for its schools, churches, and manufacturing. Our American troops landed here

July 2, 1898. The Spaniards withdrew to the highlands without offering any resistance. At the docks, we see colored workers loading vessels with coffee, sugar, tobacco, and fruit. The principal coffee and sugar plantations export their produce from Ponce.

### QUESTIONS AND PROJECTS

1. Make a list of the important highways in the world.
2. Account for the importance of the military road of Porto Rico.
3. Name any flowers, trees, and fruits the author saw on his trip across the island.
4. Why were some of the homes built on stilts?
5. Prepare a list of twenty-five words for a spelling lesson.
6. From colored papers construct either a flamboyant or poinciana tree.
7. Outline a project on the "Military Road of Porto Rico."
8. Collect a series of pictures showing the various scenes along this highway.
- 9-10. Prepare a museum for your class. Let the members supply articles from Porto Rico about which you have learned in this text such as pieces of tropical trees, flowers, minerals, pictures illustrating interesting scenes, stones, samples of soils, descriptive booklets, and other things pertaining to this territory.

## CHAPTER XXVII

### FROM PONCE TO ARECIBO

PONCE is a typical Spanish city. Its buildings, streets, people, and customs are decidedly Spanish. It has as much of a Spanish air as do any of the cities in Mexico, Panama, or South America. Ponce differs from the cities of the above countries in cleanliness health, and educational advantages.

Presently we journey to the principal plaza in Ponce where the people gather on certain evenings to dance, sing, and promenade. Near by, an ornamental kiosk towers above the palms, in whose shadow stand busy shops, quaint one-storied buildings, attractive dwellings, and tropical trees and shrubs.

A kind of quaintness and charm about the city is so fascinating we should like to make our permanent abode here. On all corners we pass blooming plants, flowering shrubs, and waving palms. The gardens, balconies, and patios contain gorgeous flowers and tropical plants. What are those nests clinging to telephone wires? These tufts of grass are not nests but orchid-like plants growing in the moist ocean-breezes.

The road from the outskirts of Ponce leads slightly northward toward Adjuntas. This section is quite mountainous. Adjuntas, a city of 18,000 population, lies on the Ponce-Arecibo highway. Our pedometer registers a distance of eighteen miles. At Adjuntas we arrive at the centre of the principal coffee-raising district.



Adjuntas lies in a fertile valley surrounded by high hills which the natives call mountains, tree-covered and often cloud-capped. We ascend to the summit of the celebrated El Novillo, 3,000 feet above sea level.



STREET SCENE IN PONCE, SHOWING HOW THE CATTLE  
ARE YOKED.

An unusual view spreads out before us in all directions. On the north stretches the blue Atlantic; on the south wind the white sandy shores, washed by the billows of the Caribbean.

Descending the peak, we rest by a clump of coconut-palms. These stately and slender trees, like all cocoanut-palms, contain blossoms and green and ripe fruit at the same time. Some children believe the natives employ monkeys to pick the nuts. Instead, youths

climb these noble palms with their bare feet. In some localities the natives use lineman's spikes to climb the trees, but these may injure the bark and cause the tree to die.

One dark-skinned cocoanut-gatherer gives a shriek, drops his fruit, and descends the tree with lightning-like speed. The myriads of bees that swarm about him reveal the cause of the excitement. Men arrive, "smoke" the bees, cut down the palm, and remove the honey and wax.

Many natives spend their time searching for bee-trees. Some farmers in the agricultural districts make a business of keeping bees. What is apiculture? The richness of the blossoms aids the bee industry. Few people realize the amount of honey Porto Rico exports.

Do you know what the natives do with the cocoanuts? The green cocoanuts are sent to their local markets where the milk is extracted and sold. The dry meat, called copra, is prepared for shipment. From the cocoanut-fibre many kinds of mats are made. The natives find various uses for the cocoanut-shells. They saw the shells through the middle, forming two hemispheres. The rural people use them for soap-dishes, soup-bowls, and scrub-brushes. •

We pass natives caring for fields of hemp. They ship it to our markets, where its tough fibres are used in making rope, cord, etc. In journeying we see planters growing indigo, aloes, ginger, balsam, cassia, yams, bananas, pineapples, tamarinds, gourds, melons, oranges, and grapefruit. Porto Rico has such an admirable climate that fruits and vegetables grow luxuriantly.

In the upland region some natives still employ old methods in tilling the soil. A few use primitive ploughs and harrows. One jibaro in a field turns the soil with oxen attached to a wooden plough. Another makes his rickety harrow, shaped like a triangle, with large



*From "Scrivener's Magazine."*

NATIVE HUT AND "PUSHING STORE," BAYAMON, PORTO RICO.

wooden teeth, loosen the soil. The latest improved farming implements are gradually supplanting these crude devices.

About us on both the slopes and the valleys are rows and rows of coffee-trees. These rows are usually from ten to fifteen feet apart. On some plantations the trees attain a height of from fifteen to twenty feet, and their evergreen branches practically cover the ground. The sweet-smelling white blossoms perfume the air with their fragrance. The green oval-shaped berries, as large as a cherry, are pink at first but change to a dark-red at maturity.

The pure, snow-white coffee-blossoms are fragrant and beautiful. The planters do not pick the sweet-scented flowers which develop into the coffee-bean, but many blossoms in the course of their development break loose and fall to the ground. The women folks place them carefully in attractive vases in their homes.

Let us learn more about the growing of coffee. The seeds are sown in earth-filled boxes in what the natives call coffee nurseries. When the young, delicate plants become three or four inches high, they are set out and watered frequently. The planters take great pains to cultivate the soil between the trees, just as our Californians do their orange and peach orchards.

The coffee-tree usually blossoms in the springtime at the age of four. Some trees blossom at three; others at five years or more. The seeds ripen in the autumn and are gathered in bags or baskets by the coffee-pickers. Since all the berries do not ripen at the same time, the picking covers a period of several weeks. The average tree bears more than a pound of coffee. Some bear as much as five and six pounds. These coffee-trees produce berries for forty and in some cases fifty years.

Workers carry their bags, filled with coffee, to the central shed or mill. Here they wash the berries and run them through machines, having heavy rollers, that crush the husks and remove the seeds. The coffee must be dried before shipment. Some planters dry the coffee in the sun; others dry it in interior ovens, heated by steam. They bag the coffee and ship it to various ports in the world where it is roasted and ground for table use.

From Adjuntas the highway threads its way through

deep valleys and over semi-rugged mountains to Utuado. In some parts the road rises to an altitude of 3,300 feet. Jutting rocks, rushing streams, misty cascades, and roaring waterfalls cause us to stop and admire them. The government has constructed dams in this mountainous region. They use the water to irrigate and generate electricity. In this section are numerous caves, said to contain various relics of an early people—probably the Indians.

Utuado, a city of 30,000 population, though Spanish in character, is decidedly American. Like all Porto Rican cities, Utuado has modern schools, churches, and a public library. All the homes in Porto Rican cities and towns as in America cluster about their churches and schools. Does this not lead us to think that education and religion are the corner-stones of our American civilization?

Whoever journeys on the winding highway from Utuado to Arecibo will always remember the trip. Hundreds of cocoanut, palmetto, and sago palms grow by the roadside. Every field, meadow, and front yard teems with flowers of all kinds and descriptions. Begonias, dahlias, cannas, snapdragon, gladiolus, century-plant, sweet-william, Venus's fly-trap, wisteria, marigold, and pitcher-plants greet us everywhere. The ever-present orchid, like the poppy of France, nods its delicate-looking head in every breeze.

What is the name of that long, slim animal that darts across the road? It is a mongoose, the animal that Porto Ricans imported to kill rodents. The mongoose has become a pest, for it kills useful animals. Men are now planning to exterminate the mongoose.



Some goats, pigs, and cats live a wild life in the forests apparently unmolested. We learn about the haunts of the alligators, the guinea-pigs, armadillos, and the monkeys. We watch out for the hunting-boia, a kind of cross between the boia-constrictor of South America



A PRIVATE RESIDENCE IN PORTO RICO.

and the blacksnake of the United States. Often he attains a length of twelve feet.

Many of our northern migrating birds spend their winters in Porto Rico, arriving in October and leaving in February. The rose-breasted grosbeak, the ruby-throated humming-bird, and the nightingale can be heard in these mountains. The song of the thrush and the cawing of the crows make us think of our bird friends in the northland. The crow has the world for his habitat, for we find him everywhere. From north to



south, east to west, and from the higher altitudes to the lowlands, our black friend, the crow, always greets us with his caw! caw! caw! Passing beneath some trees, we hear the noisy parrots and paroquets that keep up their chatter twenty-four hours each day.



THE PLAZA AND CATHEDRAL AT ARECIBO, PORTO RICO.

Our next stop is at the limestone caves. Many of these rival our Mammoth Cave of Kentucky for its beauty and size. The unexplored chambers hold many secrets and mysteries. We examine stone implements, carvings, and pottery recently found in these recesses. Undoubtedly these relics belong to the Caribs that once inhabited these mountains.

Ambling along the road, we approach Arecibo. Glittering roofs, nestled in a background of olive-green, appear as if by magic. To the left ride at anchor on the placid roadstead commercial craft from many na-

tions. To our right we gaze upon the modern city with its schools and churches.

### QUESTIONS AND PROJECTS

1. Consult a book on geology and find out about the origin of caves.

2. Perhaps some member of your school has visited a cave. Let him relate his adventures in the cave. Name five important caves in America.

3. Give meanings of the following words: plaza, kiosk, orchid, gourds, indigo, rickety, nursery, cascade, rodent, fauna.

4. Procure pictures of the various birds and animals mentioned or described in this chapter. How many of them have you seen?

5. Undoubtedly you have stood upon a high point of land and admired the enchanting scenery. Write a paragraph describing this view.

6. In a biology book read the description of the Venus fly-trap.

7. Make a list of flowers, trees, and insects that you can recognize in your own fields and woods.

8-10. Make a class project on coffee showing its history, planting, raising, harvesting, transporting, roasting, etc. "The Book of Knowledge" will furnish you with an abundance of supplementary material.

## CHAPTER XXVIII

### SOJOURNING AT AGUADILLA

CAN you imagine our reasons for coming to this city? Every October we hear many incidents in the life of Columbus. Perhaps you recall reading about Columbus and his activities here at Aguadilla. Naturally the historic city attracts us, but we are particularly interested in the industries, the people, and their customs.

If you will consult the map of Porto Rico, you will find that Aguadilla lies north of Aguada on the Arecibo-Mayaguez road. You will also note that this city lies near the western coast of Porto Rico close to the sea. This section is especially noted for its coffee, sugar-cane, tobacco, and fruit. Historically speaking, Christopher Columbus landed here and procured water and produce for his ships.

Aguadilla, containing a population of over 25,000, lies on a plain slightly elevated above the neighboring sea. This entire section of Porto Rico is flat and smooth and covered with a luxuriant vegetation. We enjoy the excellent climate, tempered by the mild ocean-breezes. The nights are as cool and comfortable as those of our northern States.

This city closely resembles other Porto Rican cities. The broad streets, lined with noble palms, the light-colored homes, and quaint shops attract us. We pay a visit to the public buildings and popular plazas. The

schools and churches compare favorably with those in the other cities of Porto Rico.

Historians do not attempt to prove that the discoverer of the New World anchored at Aguadilla.



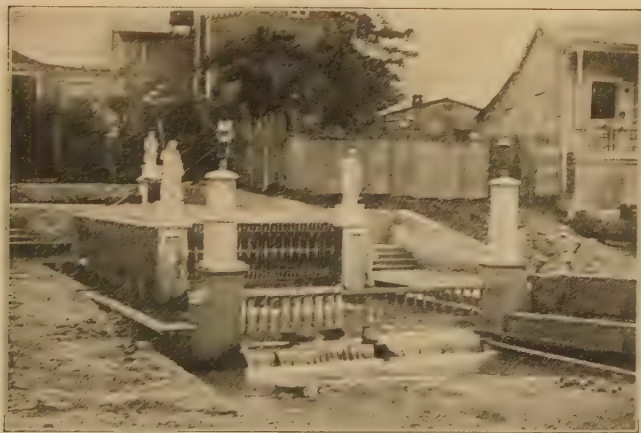
PEDDLERS' BOATS IN THE HARBOR OF AGUADILLA.

Tradition informs us Columbus landed here, and the inhabitants claim he did actually come to these shores.

We amble along a winding thoroughfare to the sandy beach where the people of Aguadilla say Columbus landed. We anticipate finding a rock on which Columbus stepped like the one at Plymouth. Instead of this, a marble monument, shaped like a cross, marks

the spot where they say Columbus procured water for his caravels. A spring, "Ojo de Agua," still discharges water as it did over 400 years ago.

From Aguadilla we wend our way along the irregular and palm-fringed coast to Aguada. Along the way



*From "Scribner's Magazine."*

COLUMBUS SPRING, "OJO DE AGUA," AGUADILLA.

we stroll among the waving palms, broad-leaved plantains, and delicate tree-ferns. At Aguada we learn that the inhabitants claim Columbus landed here first, and not at Aguadilla. In view of all the arguments we do not know which to believe.

Aguada, the second city to claim Columbus, was founded by Sotomayor, an officer under Ponce de Leon. A Spanish schoolboy conducts us to the outskirts of the city where we trace the dim outlines of the original town, destroyed by the unfriendly Indians.

Throughout the island, and especially on this trip,

we admire the velvety fields of sugar-cane. The nodding tassels and waving leaves, that almost droop to the ground, look like corn-fields in Kansas. In the outskirts of Aguada there stands "El Coloso," an old sugar-mill.

In the production of cane, Porto Rico, excepting Cuba, produces more than any island in the West Indies. Over 250,000 acres are given over to this industry. The latest figures reveal that over 700,000 tons of raw sugar are produced in a single year. Forty sugar-mills on the island are busy during the season producing the sugar.

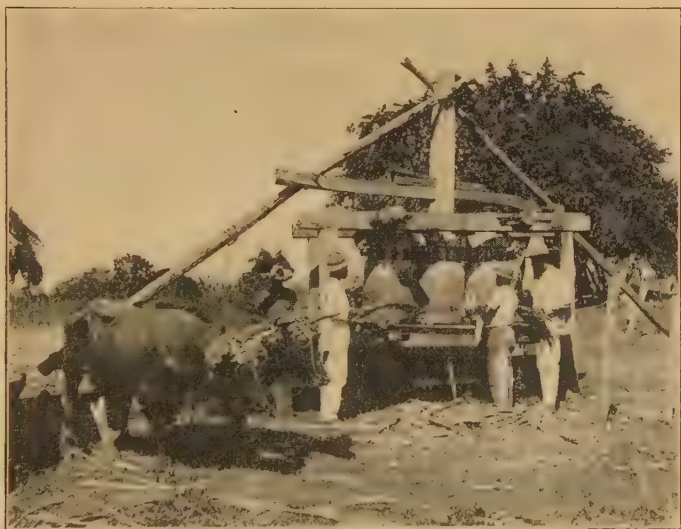
Have you ever seen sugar-cane growing in the fields? Those of us who live in our southern States easily recognize the cane-fields. Sugar-cane resembles our maize or Indian corn with its tassels forming a feathery plume of flowers. The stalks, one to two inches in diameter, attain a height of eight to fourteen feet. Where are the ears such as we see growing on the corn-stalks? Nature did not present sugar-cane with ears and so it does not have seeds.

If the sugar-cane has no seeds, how does it propagate itself? Shoots, "suckers," leafy ends, and almost any part of the stalk may be planted in the soil like potatoes. How strange it is to see Nature work in this fashion! There are fields that need planting every year; others require replanting only after ten to fifteen years. About 20,000 pieces plant an acre, which mature in twelve to eighteen months.

We watch the planters harvest the cane. The ground is too soft to use machinery to cut the stalks. On hard ground planters would not use machinery because none



has been perfected to cut the stalks close to the ground. The planters cannot afford to waste any of the sugar-laden stalk. In December jibaros cut the cane with their long machetes, and place it in temporary shocks. On some plantations a network of tracks run through



A PRIMITIVE SUGAR-MILL.

the fields. Tiny locomotives haul cane-laden cars to the sugar-mills. On some fields oxen haul the cane in two-wheeled carts to the mills.

The mill at Aguada emits black clouds from its stacks, showing it is in operation. The freshly cut cane must be taken to the mill immediately. The juices in the cane will ferment if the stalks remain in the hot sun. The cane is placed on conveyors and carried through several pairs of revolving rollers which crush

the stalks. The greenish-colored juice from the cane runs into a receiving vat, where it is pumped into a clarifier. Another conveyor conducts the megass or crushed cane or pulp to the furnace-room to be used as fuel for the boilers.

The water-like liquid is pumped to certain tanks and the impurities removed by the vacuum-pan process. This syrup flows to a large rotating machine called a centrifugal. The sugar and molasses now separate and pass to their respective containers. The raw sugar is placed in bags and sent to the refineries, most of which are in our country.

Everywhere in Porto Rico we find the children kind, courteous, and well-mannered. Their black hair, black eyes, and dark skins make them distinctly Porto Ricans. In dress they might be taken for any of us in our country. Most of the children speak English fluently and are adopting many of our customs.

It is strange to say these children never hear of Santa Claus at Christmas time. While we have Christmas-trees, hang up our stockings, and listen to tales of Saint Nicholas, the Porto Rican children celebrate in a different manner.

The parents and teachers tell their children about the three wise men. We recall how these men followed the bright star to Bethlehem and found Jesus with his mother in a manger.

Porto Ricans keep the 6th of January, which corresponds to our Christmas. The children fill their shoes with hay or straw and place them under their beds. They rise early the next morning and find the presents

the three wise men left, the camels which the men rode having eaten the straw or hay.

### QUESTIONS AND PROJECTS

1. On a map of Porto Rico in your scrap-book trace the author's journey from San Juan to Aguada.

2. Why does Aguadilla have such an excellent climate?

3. Where do you think Columbus procured water for his ships?

4. Have you ever acted as a guide for tourists? If so, describe some of your experiences.

5. After learning more from your encyclopædia, describe fully: "A Visit to a Sugar-Mill."

6. Make a large poster for your classroom that will illustrate: "Life on a Sugar-Plantation."

7. Select a committee of your class to prepare an extensive sugar project. After the project is completed, invite other classes to see it. You will find supplemental material in "The Book of Knowledge."

8. What do you mean by the vacuum-pan process?

9. Send your scrap-book to a children's hospital or ward in a hospital for the children. They will be delighted to examine your scrap-book.

10. Describe the Christmas spirit in Porto Rico.

## TABLES

TABLE I. AREA AND POPULATION OF OUR AMERICAN POSSESSIONS

	AREA	POPULATION
Canal Zone.....	500 sq. mi.	22,858
Guantanamo.....	150 sq. mi.	3,500
Saint Croix.....	84 sq. mi.	14,901
Saint John.....	32 sq. mi.	959
Saint Thomas.....	33 sq. mi.	10,191
Porto Rico.....	3,435 sq. mi.	1,299,809

TABLE II. POPULATION OF THE PRINCIPAL CITIES

Balboa, Canal Zone.....	2,700
Cristobal, Canal Zone.....	4,000
Havana, Cuba.....	538,721
Santiago de Cuba.....	76,906
Guantanamo, Cuba.....	3,500
San Juan, Porto Rico.....	71,443
Ponce, Porto Rico.....	41,912
Saint Thomas, Virgin Islands.....	7,747

TABLE III. DISTANCES ON THE PANAMA RAILROAD

STATION	MILES FROM CRISTOBAL	APPROXIMATE TIME
Gatun.....	6.79	15 min.
Pedro Miguel.....	40.23	1.20 hrs.
Miraflores.....	41.74	1.26 hrs.
Panama City.....	47.11	1.45 hrs.

TABLE IV. DISTANCES IN CUBA

STATION	MILES FROM HAVANA	APPROXIMATE TIME
Matanzas.....	58	1 hr. 55 min.
Camagüey.....	340	14 hr. 15 min.
Santiago de Cuba.....	538	23 hr. 30 min.
Guantanamo.....	569	24 hr. 15 min.

TABLE V. DISTANCES IN PORTO RICO

STATION	MILES FROM SAN JUAN	APPROXIMATE TIME
Santurce.....	3 $\frac{3}{4}$	21 min.
Arecibo.....	53	2 hr. 56 min.
Aguada.....	94 $\frac{1}{2}$	5 hr. 43 min.
Ponce.....	171 $\frac{3}{4}$	9 hr. 45 min.

TABLE VI. ADVANTAGE IN TIME AND DISTANCE BY  
USING THE PANAMA CANAL

NEW YORK TO	VIA STRAIT OF MAGELLAN	VIA PANAMA CANAL	SAVING	VESSEL SAILING 16 KNOTS PER HOUR SAVES
San Francisco.....	13,135	5,262	7,873	20 days
Guayaquil, Ecuador...	10,270	2,760	7,505	18.7 days
Valparaiso, Chili.....	8,460	4,637	3,823	9.2 days

TABLE VII. A COMPARISON OF THE WORLD'S FAMOUS  
CANALS

CANALS	KIND	WHEN OPENED TO COM- MERCE	LENGTH IN MILES	COST	CONNECTS
Erie.....	Lock	1825	363	\$ 8,000,000	Lake Erie and Hudson River
Soo.....	Lock	1855	1.5	10,000,000	Lakes Superior and Huron
Suez.....	Sea level	1869	90	100,000,000	Mediterranean and Red Seas
Kronstadt.....	Sea level	1890	16	10,000,000	St. Petersburg and Bay of Kronstadt
Corinth.....	Sea level	1893	4	5,000,000	Gulfs of Corinth and Ægina
Manchester.....	Lock	1894	35	75,000,000	Liverpool and Manchester
Kaiser Wilhelm...	Lock	1895	60	40,000,000	Niemen River and the Baltic
Elbe-Trave.....	Lock	1900	41	6,000,000	Elbe and Trave
Panama.....	Lock	1915	50	375,000,000	Atlantic and Pa- cific Oceans

## TABLE VIII. SALIENT FACTS ABOUT OUR AMERICAN POSSESSIONS

## CANAL ZONE

First visited. Alonso de Ojeda in 1499. Three years later by Christopher Columbus.

Date of possession. Treaty with Panama, February, 1904.

Terms. \$10,000,000 cash and \$250,000 after 1913 annually.

## GUANTANAMO

First visited. May have been discovered by Columbus. Admiral Edward Vernon arrived in 1741.

Date of possession. Treaty with Cuba, February 16, 1903.

Terms. Annual fee fixed by both governments.

## VIRGIN ISLANDS

First visited. Columbus on second voyage, 1493.

Date of possession. March 31, 1917.

Terms. Payment of \$25,000,000.

## PORTO RICO

First visited. Discovered by Columbus in 1493.

Date of possession. December 10, 1898.

Terms. Ceded to America by Spain at the close of the Spanish-American War.



# PRONOUNCING VOCABULARY

## KEY TO PRONUNCIATION

ā as in āpe.	ç as s.	ğ as in gem.	ô as in ôr.
ă as in făt.			ōō as in boōt.
ä as in ärt.	ē as in mē.	ī as in īce.	
á as in fást.	ě as in gět.	ĭ as in ĭt.	ū as in cūre.
ạ as in ạll.	ę as in prey.	ĩ as in machine.	ű as in bűt.
ạ as in whạt.	ē as in fērn.		û as in búrn.
â as in fâre.	ĝ as in ĝo.	ō as in gō.	ұ as in rұle.
		ö as in nôt.	ұ as in fұll.

Adjuntas: ad jŭn'tás.

Ægina: ee jē'na.

Aguada: ä gwä'dä.

Aibonito: ĭ bō nē'tō.

Ancon: ăn kŏn'.

Antilles: ăn tĭl'ēs.

Apiculture: ā'pĭ kŭl''chur.

Aguadilla: ä gwa dĭl'a.

Arawaks: ăr'a wăks.

Arecibo: ă rā see'bo.

Armadillo: ăr'ma dĭl'ō.

Bahia Honda: bā ē'a ōn'dä.

Balboa: bäl bō'ä.

Bas Obispo: bās ō bēs'pō.

Bocos del Toro: bō'cās dĕl tō'rō.

Caguas: kă'gwäs.

Caimenera: kĭ mā nă'ră.

Calabash: cāl'a băsh.

Camaguey: kă mā gwă'.

Caribbean: kăr rĭb'ē an.

Casa Blanca: că'să blăn'ca.

Cayey: kĭ ā'.

Ceron: sē rŏn'.

Cervera: thĕr vă'ră.

Cha-chas: chă'chăs.

Chagres: shă'grĕs.

Charlotte Amalia: shăr'lŏt a mă'-lĕ a.

Chili: chĭl'le.

Chiriqui: chĕ''re kĕ'.

Coamo: kŏ'ă mo.

Cockatoos: kŏk'a tōōs.

Cocos de Aguas: kŏ'kŏs dă ä'gwäs.

Colon: kŏ lŏn'.

Copra: kŏp'ra.

Corozal: kŏ rŏ sāl'.

Cortes: kŏr'tez.

Cristobal: krĭs tŏ'bäl.

Culebra: kŏō lă'bră.

Daiquiri: Dĭ kŏ ree'.

Dannebrog: dăn'e brog.

Darien: dă''re ĕn'.

De Haviland: de hăv'i land.

De Lesseps: de lĕ sĕps'.

Dengue: dĕn'gă.

Eads: ĕds.

Elbe-Trave: ĕlb-trăv.

El Caney: ĕl kă'ne.

El Coloso: ĕl kŏ lŏs'ō.

Filariasis: fi''la rĕ'a sis.

Flamenco: flŏ măn'kŏ.

Fredericksted: frĕd'er ĭk sted.

Gatun: gă tŏōn'.

Gladiolus: glă dĭ'o lus.

Goethals: gŭ'tălz.

Gorgas: ĝŏr'gas.

Guanica: gwă'nă kŏ.

Guantanamo: gwăn tă nă'mŏ.

Guatemala: gwă'ta mă la.

Honduras: hŏn dŭ'ras.

Iguana: ĭ gwă'nă.

Incas: ĭn'kăs.

Jaguar: jăĝ'war.

Jibaros: hĕ'vă rŏz.

Kronstadt: krōn'stāt.

Limon: lē mōn'.

Mayaguez: mā yā gwās'.

Miguel: mē gēl'.

Miraflores: mē rā flō'rās.

Miramar: me rā mār'.

Monongahela: mō nōn''ga hē'la.

Naos: nā'ōs.

Nicaragua: nīk a rā'gwa.

Nippon: nīp''pōn'.

Nombre de Dios: nōm'brā dā  
dyōs.

Palo Seco: pā'lō sē'cō.

Panama: pān a mā'.

Panamanian: pān a mā'ni ān.

Paroquets: pār'o kēt.

Patio: pāt'yō.

Pedrarias: pā''drā rē'as.

Pedro Miguel: pē'drō mē gēl'.

Petroglyphs: pēt'rō glīfs.

Pizarro: pī zār'rō.

Plaza Principal: plā'zā prīn the  
pāl'.

Ponce: pōn'sā.

Ponce de Leon: pōn'sā dā lā'on.

Porto Bello: pōr'tō bēl'ō.

Puerta de Fierra: pwer'tō dā fē  
ār'ā.

Regime: re zhēm'.

Rio Piedras: rē'ō pē ā'drās.

Roosevelt: rō'se vēlt.

Saavedra: sā'ā vā'drā.

Saint Croix: sānt kroi.

Saint Louis: sānt lū'is or sānt lū'e.

Saint Ursula: sānt ūr'sū la.

San Blas: sān blās.

San Juan: sān hwān'.

San Juan de Bautista: sān hwān dā  
bau tēs'tā.

San Pablo: sān pā'blō.

Santa Catalina: sǎn'ta cǎt a lē'nā.

Santiago: sǎn tē ā'gō.

Sierra de Luquilla: sē ēr'a da lōō  
keel' ya.

Stegomyia: stēg''ō mǃ'ya.

Tehuantepec: tā wān''tā pēk'.

Vasco Nunez de Balboa: vās'cō  
nun eth dā bāl bō'a.

Viscaya: vēth kǎ'yā

Wyse: wīz.

Yumuri: yōō mōō ree'.

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